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## FINANCIAL AND OPERATING RESULTS OF THE BRITISH GROUP RAILWAYS IN 1935

Our annual analysis of the accounts and statistics of the British group Railways, as shown in the published reports for the past year, is presented as a Supplement to each copy of this week's issue. Extra copies of the Supplement can be supplied, price 1s. each.

## Railway Improvements in Palestine

SIR FELIX POLE'S report to the High Commissioner on Railway Improvements in Palestine has recently been published by the Crown Agents for the Colonies, and an abstract of it will be found on another page. He was asked for his observations on a scheme outlined in an interim report of the Road-Rail Co-ordination Committee, which recommended a three-fold scheme of improvements. In his view the outstanding problem is that of improving railway transit to, from, and between Jaffa and Haifa, thereby providing for the very rapid growth of freight traffic which is to be expected in the next five years. Jaffa and Tel-Aviv are by far the largest towns in Palestine and they are at present served only by a branch line which involves Jaffa-Haifa traffic traversing two sides of a triangle and being frequently subject to delays at Lydda Junction. He accordingly recommends immediate authorisation of a railway of 18 kilometres from Jaffa to join the main line at Magdiel, which will reduce the distance between Tel-Aviv and Haifa from 128 kilometres to 104 and provide a direct route between Jaffa and Haifa, at an estimated cost of £P. 616,124. A map of this line will be found on page 792. He also recommends a new pas-

senger station costing £P. 70,439 to serve both Jaffa and Tel-Aviv; reconstruction of the present Jaffa and Tel-Aviv stations at an estimated cost of £P. 41,535 to adapt them for the handling and storage of goods; and an extension of the railway from Jaffa station to the port at an estimated cost of £P. 40,000. Sir Felix Pole is not, however, in favour of the committee's proposals for the construction of a line from Jaffa to connect with the main line near Bir Salim and thence to the Jerusalem line at Ni'ana, as he considers that it is not required from the point of view of railway operating, while its advantages in reducing the distance by railway from Jaffa to El Kantara and Jerusalem respectively do not justify the expenditure involved. He is also against the Committee's proposal to remove the present Jaffa-Lydda-Rehovot line, believing that this would be a retrograde step in view of the highly developed area traversed.

\* \* \* \*

## The Week's Traffics

Latest returns of the four group companies cover the week including Easter Monday, 1936, and compare with those for Good Friday week in 1935 when the long-distance holiday bookings were shown, so that passenger train receipts are substantially down in every case, as will be seen from the accompanying table. They are also down in comparison with Easter Week in 1935 due, no doubt, to the cold weather this year. Comparing the complete Easter holiday periods for the two years, however, it will be found that passenger train earnings in the 1936 fortnight are slightly up on three of the group railways, the increases being £5,000 on the L.M.S.R., £1,000 on the L.N.E.R., and £2,000 on the Great Western. The Southern, on the other hand, had a decrease of £5,000. For all companies together the total traffic takings for the holiday fortnight in 1936 amounted to £5,861,000, an increase of £161,000, or 2.82 per cent.

	16th Week			Year to date		
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
L.M.S.R. . . . .	184,000 +	17,000 -	41,000 -	208,000 +	457,000 +	2.80
L.N.E.R. . . . .	80,000 +	46,000 -	4,000 -	38,000 +	378,000 +	9.92
G.W.R. . . . .	67,000 -	8,000 -	33,000 -	108,000 +	122,000 +	1.69
S.R. . . . .	105,000 +	2,000 +	2,000 -	101,000 +	97,000 +	1.78

Merchandise receipts of the four companies for the 1936 Easter fortnight were £1,885,500, an increase of £101,500.

\* \* \* \*

## A First Aid Hint

Connoisseurs of the lesser misadventures of life could find much to dwell upon with pleasure in the syllabus of the L.N.E.R. Wharton Shield ambulance competition at York on April 4. A compound fracture of the right tibia struck an appropriately scientific note in the team test, while concession was made to competitors of more boisterous tastes by the case of a porter hit sharply in the pit of the stomach with the shackle ball of a screw coupling. For our own part, we have speculated deeply as to the nature of a "travel rash" supposed to have been sustained by a passenger who fell on the platform in running for a train. If, as its name implies, this blemish is contracted as a result of over-indulgence in the cheaper brands of ticket, we hasten to assure all sufferers that it is a superficial affliction no more to be feared than freckles, and 't hat time soon brings immunity. If, on the other hand, it proceeds from failing to observe such simple rules of physical and mental health as regular patronage of excursions, penny (and less)-a-mile travel facilities, camping coaches, and the like, the patient is hereby warned of the gravity of his condition, and exhorted to place himself at once under the orders of his district passenger manager.

### Pullman Incorporated

Notwithstanding an expansion of \$2,234,443 in the sleeping car business of Pullman Incorporated during the year 1935, the result of operations in this branch was a loss of \$1,646,980, as contrasted with a profit on working of \$597,356 in 1934. This was due to a larger scale of ordinary maintenance expenditure, to special maintenance charges arising from the 1935 air-conditioning programme, and to restoration of the 10 per cent. cut in the wages of all rail carrier employees. In the manufacturing business the profit was reduced from \$1,292,591 to \$228,717, and the income from investments was \$386,527 lower. The rate of increase in Pullman traffic was highest in the Western and Southern regions, where a reduced fare programme adopted late in 1933 provided for an entire elimination of the surcharge on Pullman tickets and for substantial lowering in the basic rail passenger rates. This contrasted with a much lower rate of increase in those regions where the Pullman charge has been continued and where there has been no general reduction in the over-all cost of rail travel. The Interstate Commerce decision of February 28, 1936, orders elimination of the Pullman surcharge and prescribes maximum single fares of 2 cents a mile in coaches and 3 cents in Pullman cars, but the actual rate schedules which are to be operative under this decision as from June 2 next are not yet known. During 1936 additional lightweight high-speed trains, carrying sleeping cars, will be placed in service.

### Overseas Railway Traffics

During the three weeks since the third quarter of the financial year, Argentine railway traffics have not shown up well, though comparisons are naturally affected by the incidence of the Easter holidays, and, in the case of the Central Argentine, by partial rains. In the course of the three weeks the Buenos Ayres & Pacific and the Buenos Ayres Western have added £1,719 and £5,558 respectively to their previous increases, but the Central Argentine has reduced its gain by £73,285, and the Buenos Ayres Great Southern has added £54,033 to its previous decrease.

	No. of Weeks	Inc. or Decrease	Inc. or Decrease
	Week	Trains	Trains
Buenos Ayres & Pacific	42nd	103,231	+ 274
Buenos Ayres Great Southern	42nd	139,835	- 7,829
Buenos Ayres Western	42nd	52,409	+ 6,282
Central Argentine	42nd	112,347	- 26,461
Canadian Pacific	15th	494,800	+ 37,000
Bombay, Baroda & Central India	1st	280,575	+ 47,700

At the end of its first quarter the Canadian Pacific had a gross increase of £569,200, and the B.B.C.I.R. finished its year on March 31 with a gain of £114,300.

### Effects of High Speed and Electrification

Of outstanding interest in the annual survey of transport developments during 1935, given by Mr. R. Bell, Assistant General Manager, L.N.E.R., to the Institute of Transport last Tuesday, and which we summarise on page 807, were his references to the performance of the Silver Jubilee and other high speed services, and to the forthcoming L.N.E.R. main line electrification. The experiment of instituting a very fast service between Newcastle and London was completely novel and one on the success of which there was much speculation. Mr. Bell's first-hand report, however, of the success of the train, both from the operating and the financial points of view, proves beyond doubt that high speed pays and is therefore likely to lead to important and far-reaching developments. Incidentally the particular figures Mr. Bell quoted in comparing diesel and steam for the high-speed services between Chicago and the Twin Cities show up the steam locomotive in an unexpectedly favourable light. The importance of Mr. Bell's

reference to the Manchester-Sheffield main line electrification lay in the striking figures of improved operation and line capacity which it will achieve, and the comparatively small cost of an experiment which, to use Mr. Bell's own words "may mark the opening of a new epoch for railway operation in Great Britain."

### Basic Railway Charges

A factor of railway charges which has a very important bearing on railway operation was brought out by Mr. W. V. Wood in his recent paper to the Institute of Transport on "The Problem of Railway Charges." As he said, the basic economic feature of railway charges is that they represent mainly the use of a special type of roadway, and in a less degree the haulage thereon. It resembles in many ways that of a water company whose charges represent mainly the cost of the catchment area, reservoirs and pipes and in a minor degree the actual quantity of water supplied. If, to make an existing railway line pay, its passenger trains must carry a minimum load of say 100 passengers each, then the addition of one passenger means a negligible addition to the railway cost, just as normally an extra 1,000 gallons of water cost practically nothing to a water company. Thus, as Mr. Wood pointed out, it is preferable to carry traffic at the very small charge which will cover the extra cost due to its movement, and contribute even as little as 1d. towards meeting the fixed cost, rather than not to carry it. The 101st passenger in the instance mentioned might thus profitably be carried for 1d., and the whole problem of railway charges is to find the optimum prices inside the permitted maxima which will attract the largest amount in excess of running expenses.

### Possibility of Increasing Train Mileage

The margin between normal railway loading and saturation point permits of additions to the regular flow of passengers at tariffs that entice a new class of traveller which either will not or cannot pay the regular fare. This, of course, may in turn transfer some of the regular passengers to the lower prices, but that is a matter of judicious trial and error. Mr. Wood, in his paper referred to in the foregoing note, proceeded to quote figures taken from L.M.S. experience showing the remarkable growth of the cheaper fare traffic which had been developed during the last few years by the application of this process and expressed himself as fully satisfied of the beneficial financial result. In this connection the figures of working expenses and receipts for the Silver Jubilee train, quoted by Mr. Bell in his paper (abstracted on page 807), suggest the economic possibility of the considerable extension of such special services. Even if the working expenses were as high as 4s. 2d. a train-mile, which is 1s. 8d. more than Mr. Bell's estimate of the average cost of running a train-mile, it will be seen how comparatively few new passengers it would be necessary to carry to make a profit on such an expenditure, or, in other words, to contribute towards meeting fixed costs.

### The Italian Tourist Publicity Office in London

With the recent changes in the organisation of tourist traffic in Italy, the contract for the premises shared by the Italian State Tourist Department (E.N.I.T.) and the Banca Commerciale Italiana in Waterloo Place was terminated, and, though a skeleton staff is retained there by the former, the arrangement between Major Stormont, its Manager for the past 21 years, and the Italian authorities came to an end, as mentioned in our Personal columns this week. The E.N.I.T. office in London has varied

from time to time, since Major Stormont founded it in 1914, with the changing ramifications of tourism and publicity in Italy, and probably no other similar office has been more successfully conducted. It should first be realised that tourist traffic is one of the more important industries in Italy, and therefore the services of anyone so experienced in travel business, so versed in Continental travel and with such a wide circle of business and private friends as Major Stormont, to conduct its propaganda in London, have been of the greatest value. The E.N.I.T. was created in 1921 to combine control of the travel publicity of the State Railways and State Tourist Department, but six years later the State Tourist Company (C.I.T.) was formed and took over from the E.N.I.T. the various tourist booking offices, leaving publicity to the E.N.I.T. Then in 1929, the Italian Government appointed a Commissioner for Tourist Traffic further to develop the industry, and selected Signor Suvich, President of the E.N.I.T., as the first Commissioner; as a result the E.N.I.T. was reorganised. In 1934, however, a Ministry for Press and Propaganda was formed under Count Ciano and took over E.N.I.T., the commissionership being abolished.

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#### Railway Families to Exchange Children

A scheme has been worked out between the Reichsbahn and the French railway systems whereby there will be an exchange of children during the school holidays between railway employees' families. The arrangements will be conducted by the Reichsbahn management, on the one side, and by the French section of the All Peoples' Association in Paris, acting for the French companies and the State Railways, on the other. All the German children over 14 years for whom a children's grant is payable are eligible. No knowledge of the French language is necessarily required. The arrangement preferred is for, say, the French child to come for a certain time in the German family and for the German child then to travel back with him or her so that the two are together in both families, but simultaneous exchange can also take place if more convenient in a given case. The parents promise to treat the visitor in all respects as their own child and to bear all ordinary expenses during its stay—except of course exceptional charges arising from accident or illness, in the event of which the child's own parents are to be instantly notified. The children will travel exclusively via Strasbourg, where an office for keeping in touch with them is to be set up. After their stay in the other country the children are required to write an account of their experiences. It is understood that political and religious questions must not be discussed in their presence. This exchange will, it is hoped, assist in promoting good relations between the two countries and should undoubtedly have much educational value for the participants.

\* \* \* \*

#### The Pennsylvania as a Flood Refuge

The Pennsylvania Railroad has received many testimonials from passengers to its initiative and organisation during the abnormal conditions created by the floods of mid-March (see our editorial note last week, and the Overseas columns of the present issue). Many travellers had to accept the company's hospitality for protracted periods, either because their trains were marooned, or diverted to lengthy detours. A formal resolution of thanks to the crew, the station staff at Huntingdon, and the company, was passed by passengers on the Duquesne, the afternoon express from Philadelphia to Pittsburgh. Good food and pure drinking water, with sleeping accommoda-

tion at night, was provided for them on the train or in an hotel throughout the time they were held up at Huntingdon, and, in contrast to the local residents, they did not have to forego the comfort of central heating in their temporary home even when the floods were at their worst. The Manhattan Limited, as mentioned last week, reached New York a day late, and ninety-seven of its passengers signed a letter of thanks to the railway for the consideration they received *en route*, while similar references to "an enjoyable time" or "a wonderful experience" occurred in appreciative correspondence from others who had been similarly delayed. The full normal service over the affected Pennsylvania routes was resumed on March 23.

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#### Crowlands : An Unopened London Station

In connection with the electrification of the line between Liverpool Street and Shenfield, the L.N.E.R. proposes to complete and open a 30-year-old station which has never been used for traffic. Just over three decades ago the Great Eastern Railway decided to build a station at Jutsums Lane, between Chadwell Heath and Romford, in anticipation of the housing developments. Work was begun, the platforms were put up, and even the name—Crowlands—was selected. The housing development failed to materialise, largely, we believe, because the members of the then Romford Council opposed anything that would encourage large numbers of persons to settle in their area and impair its select and rural character. In the circumstances it was decided to abandon the project; the station was dismantled and only the platforms were left. In recent years the district around Jutsums Lane has been developed considerably, and the decision to electrify the line naturally brought this section under review, when it was found possible to use the site of the old station. Probably, we gather, the remains of the old station will be used for the foundations of the new one, but no decision has been taken as to the name, so perhaps "Crowlands station" may even now never be opened as such.

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#### Locomotive Boilers and Weight

We agree with the author of a paper entitled "Some Suggestions on Steam Locomotive Design," which was read before the Institution of Locomotive Engineers at a meeting in London last night, when he suggested that the reduction in the weight of a locomotive, apart from that used for adhesion, presented a great problem to the locomotive engineer. A typical modern locomotive for passenger service has three driving axles, each carrying approximately 20 tons, or 60 tons in all, and this, being sufficient weight for effective adhesion at the loads and speeds required, constitutes the total useful weight. The actual weight, however, including the tender, coal, and water, may be as much as 160 tons, giving an extra load of 100 tons to be hauled, which must be added to the gross weight of the train. The author, Mr. J. W. Beaumont, went on to develop thoughts connected with locomotive boiler design, and although he does not appear to have directly attributed the extra weight of the locomotive, as is mainly the case, to the bulky and heavy boilers necessitated by modern conditions, he made some useful suggestions regarding the more extended use of other types of boilers so far employed only in smaller sizes; such boilers might, he thought, be designed in larger proportions, although of considerably decreased weight. There is scope for much ingenuity in adopting for ordinary locomotive purposes boilers in which pressures can be raised to any desirable limit, even 1,200 lb. per sq. in., and in which steam is generated only as required. This would go far to solve the weight problem.

### British Group Railways in 1935

THE results of another year's working are now available, and form the subject of a special supplement to our current issue. As each annual return is made public, the student of railway administration or finance may discover at least a few salient points either indicative of the outcome of new developments in the art of railway management, or reflective of the degree of general business activity and the collective prosperity of the community. It will be noted that, during 1935, gross revenue from all sources shows an improvement of nearly £2,600,000 or approximately 1½ per cent. About 86 per cent. of this increase was realised during the second half of the year, and taking into consideration the very similar state of affairs in 1933 it would seem that although the trough of the depression has been passed, recovery is experiencing subsidiary fluctuations of a periodicity not in phase with the annual returns. Receipts in respect of railway working show that this source of revenue has provided more than three-quarters of the total improvement in gross income. Passenger traffic shows a substantial increase both in revenue and number of passengers carried. It is pleasant to note that the extension of the policy of providing cheaper travel, by a reduction in first class fares, has been justified by an increase of over 6½ per cent. in revenue from this class of passenger. This result is the more surprising having regard to the improvement made during recent years in the standard of comfort provided for third class passengers, particularly on long distance trains. Although there has been an increase in revenue from workmen's tickets, with the exception of the Southern group receipts from season tickets continue to decline. Third class season tickets show a small improvement on the L.N.E.R. and G.W.R., but this is more than offset by the drop in first class season tickets. In this connection it is interesting to compare the position in 1935 with that of 1925. In ten years on the Southern Railway the number of season ticket holders has grown by 22 per cent., and revenue from this source by 18 per cent.; on the other three railways the number of such tickets issued has decreased between 22 and 28 per cent. and revenue dropped between 33 and 36 per cent. Freight traffic has increased by 0.88 per cent. in spite of decreases on the L.N.E.R. and Southern Railway of £49,000 and £189,000 respectively. The principal traffics reflect a falling off in the carriage of building materials in areas served by the Southern and Great Western Railways, but increases on the L.M.S.R. and L.N.E.R. iron and steel carryings appear to have improved upon the previous year, and, in fact, to be better than in 1925. The tonnage of coal conveyed is about the same as in 1934, but this is some 10½ per cent. less than it was ten years ago.

Revenue expenditure is slightly higher in the aggregate than it was in 1934, but the comparatively insignificant increase is, we suggest, the most satisfactory aspect of the year's working. It was naturally expected that during the years immediately following the grouping, substantial economies would be effected by the elimination of wasteful competition, but these years were followed by a long period of severe trade depression and declining traffic, during which revenue expenditure continued to fall. Shareholders and the public were assured repeatedly by railway managements that the reduction in costs of upkeep and working were due to increased efficiency rather than diminishing revenue, and that in all departments the proper standard of upkeep was being maintained. The returns for 1935 certainly tend to confirm these statements; the depression lasted so long that, had arrears of maintenance been allowed to accumulate, the time must surely have arrived when no further postponement would

be possible, in which case rising revenues would be more than offset by increased expenditure. That such is not so is most creditable.

There is a total net increase of about £570,000 in maintenance of way and works, with credits from suspense accounts approximately £100,000 more than in the previous year. Complete renewal of track totals 1,228 miles, an increase of 31 miles on 1934. Under certain specific heads of Abstract A, large variations will be found compared with the previous year; they are no doubt caused by substantial replacement works not wholly attributable to this particular year's working and therefore subject to appropriate suspense account transfers. Maintenance of rolling stock—Abstract B—calls for no special comment; the stock of engines continues to decline, but the number of steam locomotives completely renewed totals 566, that is, 175 more than in 1934. The amount spent on locomotive running expenses is of course largely dependent upon train mileage; the continued and indeed increasing efficiency of this section of the railways is borne out by the year's working costs as returned under Abstract C. The rise in traffic expenses is no greater than was expected having regard to the increase in traffic and the restoration of part of the cut in wages. Expert though the travelling public may have become in the art of "porter grabbing" or handling its own luggage, we cannot but feel that it will view the arrest in the reduction in expenditure on "porter, &c.," with something akin to relief. Except for the Southern, steamboats show an increase both in gross receipts and net profit compared with the previous year; in the case of road transport, however, an all round increase in gross revenue is accompanied by an increase in the ratio of expenditure to receipts on all lines except the L.N.E.R. On the Southern, net receipts from docks, harbours and wharves are up by about 13 per cent., on the other three lines results are disappointing. Regarded as a whole, the year's working is satisfactory to the extent that the railways appear to have taken full advantage of all improvements in trade conditions, but it is to be regretted that far too much capital has still to go without any return, and although traffic receipts during 1936 so far show an increase over 1935, much ground remains to be covered before all groups are earning their standard revenue. The relief in respect of rates will be a valuable aid to this end, but the ultimate goal is still far distant.

### Paris-Orléans Railway

ALTHOUGH the lines of the Paris-Orléans and Midi Railways have been worked as one system since January 1, 1934, each company retains its own identity and issues its own report. In the report of the Paris-Orléans Railway for 1935, presented to shareholders at the annual meeting on March 31, the main operating results compare as follows with 1934:—

	1935	1934
	Fr.	Fr.
Gross receipts	1,359,182,394	1,500,693,584
Expenditure	1,267,873,972	1,333,828,486
Net receipts	91,308,422	166,865,098

These figures represent the share of the P.O. in the joint operation of the P.O.-Midi system. They represent a decrease of fr. 141,511,190 or 9.43 per cent. in gross receipts, but at the same time there was a saving in expenditure of fr. 65,954,514 or 4.94 per cent. The net receipts show a decrease of fr. 75,556,676, and the deficit on the P.O. Company's operations for the year to be borne by the Common Fund was fr. 368 millions, against fr. 294 millions in 1934. For the joint P.O.-Midi system the operating ratio in 1935 was 96.10 per cent., against

92.03 per cent. the previous year. This ratio remains the best of the French railway systems. In the following table will be found comparative operating figures for the joint P.O.-Midi system:—

	1935	1934	Difference	
	Fr.	Fr.	Fr.	Per cent.
Gross receipts	2,040,945,443	2,249,105,676	—208,160,233	—9.25
Expenditure	2,008,938,255	2,069,812,989	—60,874,734	—2.94
Net receipts.	32,007,188	179,292,687	—147,285,499	

Operating receipts of the Orleans company in 1935 last year continued to decline, as agricultural depression decreased production and the purchasing power of the farming population in the areas served by this system. At the same time international trade was almost completely paralysed by the increased English and Spanish customs duties. Road motor competition continued to reduce railway receipts due to the fact that rail and road co-ordination agreements between the various forms of transport have not yet become effective. Emphasising the latter point in his speech to the shareholders at the general meeting, M. Richemond, Chairman of the company, said that although the Co-ordination Committee had finished its work, no ministerial decisions had been taken on the measures recommended. Instead, a Super-Committee had been formed, but its powers were still undefined and it was clear that final decisions were still remote. Continuing, he pointed out that though the deficit had shown a further increase during 1935, this would have been still greater had not fr. 74 million been saved in management expenses. How much of the amount saved had been due to the joint operation of the Orleans and Midi lines, it was not possible to determine, but the sum was probably insignificant.

The meeting approved the accounts and voted dividends of fr. 68 on the capital shares and fr. 53 on the *joissance* shares. M. Richemond said that in view of the increased taxation imposed on the shareholders, the board had considered it advisable to distribute as interest almost the whole revenue of the company, and to allocate only a small balance to the reserve. For 1934 the dividend was fr. 62 on the capital shares. Powers to borrow a further sum of fr. 900 million were voted by the meeting. The report indicates that the electrification of the line from Tours to Bordeaux, the purchase of rolling stock and the deficit in the operating account necessitate borrowing powers in excess of the fr. 753,754,408 still available from the preceding authorisation to borrow 950 millions, voted by the annual meeting on March 29, 1935.

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### Railway Camping Coaches

ONE of the outstanding features of holiday-making in Great Britain during recent years has been the remarkable increase in camping and walking. This led the L.N.E.R. to introduce in 1933 the facility of camping coaches, designed to provide the advantages of an open-air holiday without its drawbacks. The coaches were obsolete passenger stock, altered internally to provide two bedrooms, with beds for six persons, a large living room with a table, six chairs and a wardrobe, and a combined kitchen and scullery with sink, draining board, etc., and oil cooking facilities. The coaches were also equipped with blankets, sheets, linen, cutlery, crockery, kitchen utensils, oil lamps, mirrors and an oil heater; in fact, everything that campers might require, while clean linen was supplied weekly from railway laundries. The scheme was launched with ten coaches on branch lines in the North of England, among some of the most beautiful scenery in that area. The weekly rent was £2 10s. for a

coach accommodating six persons, and there were no extra charges. The only conditions attached to the hiring were that the hirers should travel to their coach by rail and purchase their tickets beforehand, and that the equipment of the coach should be handed over intact at the end of the hiring period. The ten coaches were placed in service in July, and proved so popular that they were let continuously until September.

The innovation attracted widespread interest, and in the following year the L.N.E.R. increased its stock of camping coaches to 35, while the L.M.S.R. and G.W.R. equipped a number themselves, so that nearly 100 were available. The same general design was followed in these and subsequent coaches, but each company effected minor improvements from time to time as the result of experience, and variations were made in the amount of the rental, this being in some cases from £3 to £3 10s. a coach according to season. The coaches were stationed at selected sites in territory ranging from seaside to moorland, and from mountainous settings to river banks. The accommodation of all companies was booked almost continuously throughout the summer, and one company alone received applications for more than four times the amount of accommodation available. In 1935 the four main line companies each converted an additional number of coaches, so that over 200 were in service, including some of 4-berth and 8-berth types which were provided in response to requests from the public.

The bookings in 1935 were again so heavy that all the companies are adapting further vehicles for the present year, during which over 300 coaches will be on hire at a number of beauty spots throughout England, Scotland, Wales and Ireland. Express restaurant car services are usually available to stations adjacent to the camping coach sites, and, in any case, the usual facilities apply for the despatch of luggage in advance. Ample provender can be obtained locally, and the number of appreciative letters received show that the local stationmasters are following up the scheme with enthusiasm and rendering every possible assistance to camping coach parties by furnishing information of local interest, and making suggestions which enhance the enjoyment of the holiday. It may be recorded that the railway fares of the coach parties represent substantially more than the actual hiring charges, while the popularity of the coaches, particularly for the month of August, can be visualised from the fact that early in the present year several coaches were booked for August, 1937. Following the practice of last year, a number of the latest coaches have been placed for inspection by the public at various large stations throughout the country, where they are attracting a steady stream of visitors.

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### The Late Mr. H. Raynar Wilson

PERHAPS the most permanent contribution of the late Mr. H. Raynar Wilson (whose death on Sunday we record on page 803) to the advancement of railway science was his literary work on signalling and accident prevention. Up to the end of last century there was an almost complete lack of useful literature in English on railway signalling, apart from isolated papers, articles, and, on block signalling, two books by J. Pigg and W. E. Langdon. American practice was represented by Mr. W. H. Elliott's small but useful general work. Meanwhile, however, Mr. Raynar Wilson had been contributing articles to *The Railway Engineer*, one of our constituent publications, then edited by S. Richardson Blundstone, and in May, 1900, they were issued, with some additional matter, under the title of "Railway Signalling." The book had an excellent reception, and was out of print by 1902, when a new edition

was issued with the title of "Mechanical Railway Signalling." Electrical devices, and the then growing power signalling systems, were given separate treatment in "Power Railway Signalling," which he published soon afterwards. These books have long been out of print, but in spite of subsequent progress are still turned to with advantage by students and others.

Mr. Raynar Wilson then directed his attention to another question that had been little dealt with by writers, save perhaps the late Mr. Clement E. Stretton, that of railway accidents and railway safety legislation, issuing a useful and handy volume in 1909 entitled "The Safety of British Railways." In that work, for the first time, he subjected to a critical analysis a mass of important facts and reports,

thereby rendering a considerable service to all concerned with the safe working of trains. Mr. Raynar Wilson made this subject peculiarly his own, and for many years was a regular and valued contributor to THE RAILWAY GAZETTE on accidents and accident reports, as well as of articles descriptive of signalling and other safety devices. On the occasion of the British railway centenary in 1925 he published a further work "Railway Accidents: Legislation and Statistics," which was again distinguished by its valuable presentation of, and commentary upon, material otherwise not readily accessible to railway officers. Indeed, by his energy and enthusiasm for research, Mr. Raynar Wilson must have furnished the inspiration for some of the recent progress in railway signalling and safety methods.

## LETTERS TO THE EDITOR

(*The Editor is not responsible for the opinions of correspondents*)

### Carriage Door Locks

Bradnor, Whetstone, N.20,  
April 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I thank you for the courtesy of a reply to my letter under the above heading published in your issue of April 17. There would appear, however, to be some confusion of ideas between (a) the provision of some form of spring lock for which my letter presented a plea, and (b) the use of inside door handles to which I made no reference. It may be agreed that the adoption of inside door handles (except for suburban stock) is not free from risk of accident through misuse. On the other hand the provision of a spring lock to retain the door shut when slammed is universal practice for all new passenger carrying vehicles on all our railways except the Great Western.

Yours, &c.,  
L. A. FULLAGAR

### Improved Train Services

56, St. Mary's Mansions,  
Paddington, W.2, April 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your article in the issue of April 3 on "Improved train services in May and June" coincides so opportunely with Mr. Cecil J. Allen's admirable comments (in the April issue of *The Railway Magazine*) on schedules "which have still to win their way back even to pre-war levels of speed," and the comparatively modest demands that many present day timetables make on the Running Department, that I hope you will allow me to call attention to certain features in these May improvements. Much as everybody welcomes a 30-min. acceleration to Glasgow in the down Midday Scot, it must be remembered that the old "Corridor"—at its historic 2 p.m. departure time from Euston—gave a connection at Willesden with the Sunny South express and a departure from Birmingham for Scotland at 3.30, while the May re-arrangement fails also to make any real improvement in the Manchester and Glasgow service—now 5 hr. 10 min. with two changes of train, as compared with 5 hr. 5 min. with one change in 1914 and 4 hr. 55 min. in 1895, when the London to Glasgow portion was separated from the Edinburgh and north vehicles at Preston, as it will be separated next month at Carlisle. The second (through) Manchester to Glasgow service, at 5.5, will still be a 5 hr. 35 min. train as against its pre-war 5 hr. 20 min. schedule, and it seems a very great pity that the timetable could not have been thoroughly revised and a 7½ hr. service to Glasgow grafted on to the 1.30 departure (which for a restaurant car train is commercially almost as good as 2.0) with the benefit of earlier connections beyond Glasgow, or alternatively, a *real* afternoon service given at

3 or 3.30 from London, in which case a fast Manchester-Glasgow train in 4½ or 4¾ hr. could have preceded the London express. As to the down Royal Scot (which surely might have reached Edinburgh and Glasgow in the "up" 7 hr. 40 min. schedule), an acceleration of 3 minutes to Carlisle—the train has already 7 minutes "spare" in its schedule—and 126 min. from Carlisle to Glasgow, with one stop, adds another plank to Mr. Allen's platform; the 10.30 from Euston, by reaching Manchester at 2.5 reverts to a journey time of 25 years ago, and the accelerated Ulster express still has more time and on the easy road from Crewe to Euston than the up "Corridor"—the very point which Mr. Allen emphasises.

Surely, too, the new 11.30 a.m. from York to Edinburgh is just the type of new train (like the 7.15 p.m. from King's Cross) where a fast schedule would have been a cheap and good advertisement, and we can only hope that the patronage given to it from south of York will soon warrant the running of a really fast train from London at about 8.15, so as to remove, at long last, the complaints of bad early morning communication between London and the north. Such a train ought, of course, to serve Sheffield (now inaccessible till 12.15 by passengers who cannot catch the 7.25), and the 7.25 itself might then make the pick-up stop in the outer suburban area, already suggested in your columns.

Yours faithfully,  
R. F. CHARLEWOOD

### Boiler Pressures in British Colonies

Federated Malay States Railways,  
Kuala Lumpur, March 21

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Referring to the leading article appearing in THE RAILWAY GAZETTE of February 7, on the subject of the Beyer Garratt locomotives recently introduced on the Nigerian Railways, please permit me to correct the impression created by the statement that the boiler pressure of 225 lb. per sq. in. is the highest yet adopted in British Colonial practice.

In your issue of November 7, 1930, you described and illustrated a 4-4-6 tank engine, built in that year for the Federated Malay States Railways. The boiler of this engine is designed for 250 lb. per sq. in., or 25 lb. in excess of the Nigerian locomotive. It may be admitted that the term "Colonial practice" cannot strictly be applied in the case of this engine, since the Federated Malay States are a British Protectorate and not a Colony. I think, however, the expression intends to include Dependencies, and it is on these grounds that I draw your attention to the matter.

Yours faithfully,  
A. W. S. GRAEME,  
Chief Mechanical Engineer

## PUBLICATIONS RECEIVED

**The Young Engineer.** By J. N. Digues la Touche. London: The Technical Press Limited, 5, Ave Maria Lane, Ludgate Hill, E.C.4. 7½ in. x 5 in. 242 pp. Price 5s. net.—A young man just starting his career as an engineer has generally had a good theoretical training, but too often he is unable to make the most of it under practical conditions. This little book tries to show how such a difficulty can be remedied by giving useful hints for various phases of work required from a young engineer on Indian railways. Although the possibilities of such a volume are great, the author has missed his opportunity. Much useful information is given, but it is presented in an uninteresting way, so that only a very conscientious student would bother to read the whole book. It is a task, and not a pleasure, to read this awkwardly written volume. A great improvement would be the addition of diagrams or illustrations to assist the author in his detailed descriptions of operations or works, which in some cases are not at all lucid. Another improvement would be to cut out the many cases of repetition, for some statements are repeated in almost identical terms within the space of a few pages, as if they were being made for the first time.

A point rightly stressed is that much can be learnt from the foreman and others in subordinate positions, a fact too often overlooked by engineers. Sections which are treated well are those dealing with screw piling, methods of signalling, a short discussion on the reason for keeping super-elevation rather lower than the theoretical amount, and one on maintenance, which emphasises that "one secret of efficient maintenance work is never to allow defects to go beyond a beginning." Other chapters deal with contracts and contractors, surveys (without going into theoretical details), and different works involved in the construction of a new railway. The whole is treated very much from an Indian point of view, but could be useful to young engineers in other countries.

**L.N.E.R. Camping Holidays.**—In recent years camping holidays have become increasingly popular, especially with the rising generation, and the efforts made by the British railways to stimulate the tendency have been well rewarded. An attractive booklet entitled "Camping Holidays," recently issued by the L.N.E.R., provides in a convenient form an excellent guide to all the facilities now available for those who seek an open-air holiday. There are three sections dealing, respectively, with camping coaches, youth hostels, and sites for camps. The camping coach fulfils admirably the wants of those uninitiated in the finer points of the art of camping, and the success that has attended its introduction may best be gauged by reference

to our leading article on page 785 of this issue. In connection with the Youth Hostels, which seek to provide simple and economical holidays, the railways offer special travel facilities. In addition to particulars of these arrangements, a brief description is given of each hostel on the L.N.E.R. system. The third section consists principally of a tabulated list of camping sites. All three sections, however, in addition to being well illustrated, are prefaced by introductions containing many hints which, if borne in mind, should help to make a happy holiday happier.

**City of Birmingham Handbook, 1936.** Birmingham: The Manager, City of Birmingham Information Bureau, The Council House. 9½ in. x 6 in. 320 pp.—A book such as this is as satisfactory a guide for the inquiring visitor to Birmingham as any of the more usual collections of historical information which are offered to the tourist. History is, of course, not neglected, and we are told how in 1538 John Leland reported to Henry VIII that Birmingham was "a good market towne in the extreme parts of Warwickshire," where "there be many smiths . . . that use to make knives and all manour of cutting tooles, and many lorimers that make bittes and a great many naylors." The main purpose of the book, however, is to show Birmingham as it is today, under the headings of civic administration, amenities, social services, and city undertakings. Numerous illustrations emphasise the success of planning and enlightened architecture in ensuring for Birmingham an harmonious and balanced development. Some interesting details are given of the Elan Valley reservoirs from which the city draws its water supply through an aqueduct 73½ miles in length. At March 31, 1935, the average daily distribution of water in Birmingham was 30,721 million gallons, to an estimated population of 1,077,401. It says much for the spirit of Birmingham that it has not satisfied itself with keeping its own house in order for the benefit of residents and the admiration of visitors, but has extended its influence to create among the Welsh mountains a lakeland vista which is the delight of tourists.

Following an outline of the equipment and output of the Electric Supply Department, which supplies an area of nearly 200 sq. miles, there is a chapter dealing with the transport services. Birmingham has witnessed the development of its present system through the stages of horse and cable tramways (from 1873 to 1906), electric tramways since January 1, 1907, motorbuses since July, 1913, and now trolleybuses. The corporation's most recent omnibus garage is the finely equipped building at Wellhead Lane, with a capacity for 120 buses, the routine work at which is briefly described.

We feel, however, that some reference

to railway services might well have been included in the pages of general information for visitors, with, perhaps, a bouquet for one of these old-established and deserving institutions which last summer brought the city within 115 minutes of London for the first time in history.

**Canadian Holiday Tours.**—We have received two very attractively produced Canadian Pacific holiday booklets, giving particulars of sea travel from Great Britain in the company's well-known steamships, and trans-continental or shorter tours by rail in Canada itself. "Across Canada Tours" gives itineraries for tours starting from Liverpool on May 29 and July 24, and calling at Belfast and Greenock. Both tours follow the same route across the continent to Medicine Hat, subsequently taking in Calgary, Banff, and Vancouver, with minor modifications of route. Tour No. 2 has also been combined with a special British Columbia Government Inspectional Tour arranged in conjunction with the Vancouver Jubilee celebrations. Another booklet, "Short Tours to Canada" gives a number of itineraries taking in such points as Quebec, Ottawa, Toronto, Niagara Falls, New York, and Montreal, with optional extensions to Chicago, Albany, and Washington. The standard tours take three weeks, and departures are at various dates between April 9 and the end of September. The Canadian Pacific office in London, from which copies of the booklets may be obtained, is at 62-65, Charing Cross, S.W.1.

**Steels for Diesel Engines.**—Hawthornes Limited, Sheffield, has published a card folder giving specifications of steels suitable for use in diesel engines, and illustrating a valve in Era H.R. heat-resisting steel, which can be used without water cooling. The folder shows typical mechanical properties and applications, and serves as an index to the more detailed catalogues available.

**Aluminium Sections.**—A new edition of the booklet, "Aluminium Sections" has been issued by the British Aluminium Company, Adelaide House, King William Street, E.C.4. Selected profiles are illustrated full size, and convey an excellent impression of the variety of constructional and decorative applications open to the metal. Representative items in the complete list of specifications are step edgings, tread plates, gutterings, surrounds, architraves, window, and window sill sections

**Furnaces and Tools.**—Brayshaw Furnaces & Tools Limited, Belle Vue Works, Manchester, 12, describes in two illustrated bulletins some representative examples of its latest furnace and small tool designs. Heat treatment, forging, and hardening equipment supplied by the firm is shown in use by many important and large-scale industrial undertakings. The small tool bulletin gives an interesting picture of modern advance in the design of cutters, based upon recent Brayshaw products.

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## THE SCRAP HEAP

Eleven L.N.E.R. locomotives of the "Sandringham" express passenger type now under construction at the Darlington works of Robert Stephenson & Co. Ltd. are to bear the names of the undermentioned Association Football teams:—

Manchester City	Bradford City
Everton	Barnsley
Liverpool	Manchester United
Leicester City	Tottenham Hotspur
Nottingham Forest	West Ham United
Bradford	

When these are completed the L.N.E.R. will have a total of 25 engines bearing the names of famous sporting clubs.

### ENEMY NUMBER ONE

Proof of the necessity for increased vigilance and care in all railway operation during foggy weather is provided by the fact that, during a recent month, no fewer than 56 per cent. of the total main-line mishaps on the L.M.S.R. system occurred in fog.—*From "On Time."*

When George Westinghouse invented the air brake, he wrote to an American railway president, describing his invention. The president scribbled "I have no time to waste on fools," and sent the letter back. About a year later the air brake began to be adopted by American railways. The president who had been rude sent Westinghouse a letter asking him to call. Westinghouse wrote on the letter—"Neither have I!" and returned it to the president, together with the rude letter.

### IT IS A DREADFUL WORD—

#### "DEFINITELY"

"Do leave out that dreadful word if you can," said Mr. Justice Langton, in the Divorce Court, to a witness who had made use of the word definitely.

"If you can leave it out, do," implored the judge. "I know practically no witness can. Again and again you say you 'don't know it,' adding 'definitely.' It is much better to leave it out." The witness said he was sorry.—*From the "Evening Standard."*

In the G.W.R. plan room, part of the Chief Engineer's Department, well over a quarter of a million plans and drawings dealing with stations, bridges, and tracks of the G.W.R. and its constituent companies are stored. The room has been in existence for over fifty years, and the plans are stored in great iron racks which reach from floor to ceiling. Every plan has a number and is registered and signed for when taken out. Actually there are over 64,500 contract plans and drawings registered; the remainder of the quarter of a million are prints and negatives of the original plans or ordnance sheets or Parliamentary deposits. The earliest plan in the room dates

back to 1790, and is of the Kennet and Avon Canal.

The following inscription is from the back of the business card of a member of the Mail & Express Traffic Department, Missouri Pacific Lines:—

"BUSINESS FOLLOWS SERVICE" I solicit your patronage for the Missouri Pacific Lines and guarantee courteous treatment and satisfying service. Every member of the Missouri Pacific family is a Booster and every boost for the Missouri Pacific is a boost for the communities that it serves.



Daimler and Benz commemorative stamps issued in connection with the Jubilee Motor Exhibition in Berlin (see page 305 of our February 14 issue)

### BOYS STEAL A RAILWAY

Twelve peasant lads from the village of Osijek have just been brought before a Croat magistrate on the unusual charge of stealing a railway. Between Osijek and Zirostini there ran a narrow-gauge railway four miles in length on which there were only two trains a day. When the railway policeman at Zirostini, whose duty it is to patrol the line, took up his task one morning recently he was astounded to find that his railway had disappeared down to the last bolt and the last sleeper. When the police brought the 12 lads before the magistrate they told him that their exploit was a boyish prank. The magistrate held, however, that the lads had outgrown the model railway stage more especially as it was proved that they had tried to dispose of the plunder as scrap iron. He sent them for trial.—*A message from the Belgrade correspondent of "The Daily Telegraph" published on April 1.*

Sir Josiah Stamp must be warned of the latest threat to the railways. I read in *The Daily Telegraph* news from Belgrade of a railway that ran the four miles between Osijek and Zirostini the track of which has been entirely removed by twelve peasant lads. The report does not add whether the lads' fathers were road transport men or not, but it puts ideas into one's head, doesn't it?—*A note by "The Highwayman" in the following issue of "Motor Transport."*

### ROBERT GERWIG, 1820-1885

December 6, 1935, marked the fiftieth anniversary of the death of Robert Gerwig, the builder of the Black Forest and other railways, as referred to in the notes on that line published on page 630 of our issue for October 18, 1935. This eminent engineer was born in the Grand Duchy of Baden—some accounts say at Karlsruhe and others at Fforzheim—on May 2, 1820, the son of a civil servant. Educated at Karlsruhe, he passed the State examination in 1840 with distinction, and at the early age of 26 obtained a high position in the national highways and waterways service, which down to 1870 was also entrusted with the work of railway building.

Gifted with much talent, energy and perseverance, Gerwig knew how to draw the best out of all his experiences, the results of which he incorporated in valuable notes and drawings, and he gathered round him a group of capable assistants. Thus equipped he entered on what is always regarded as his greatest achievement, the making of the Black Forest line. Particularly noteworthy is the principal and very difficult portion between Gutach and Sommerau, where in a distance of about 20 km. a height of 550 m. has to be overcome; this, making allowance for some level track in stations, necessitated a grade of 1 in 33. Proposals had been made to adopt reversing stations, and the first plans for the line, made in 1846 by an engineer named Sauerbeck, showed them. The delays involved in reversing, changing engines, &c., caused the scheme to be regarded unfavourably, and in 1857 Gerwig proposed the use of spiral tunnels, which in due course he successfully applied. His experience of road construction in mountainous districts assisted him in finding the best route.

In 1872 Gerwig was called upon to supervise the construction of the St. Gothard Railway, and adopted the same arrangements at Wasen and Giornico. Differences with the management caused him to resign three years later, when he returned to the service of the Grand Duchy as Chief Engineer for Railways, and was responsible for a number of works of importance. Among them was the Höllenthal line, but he did not live to see it finished, dying of heart failure on December 6, 1885.

Gerwig was one of those remarkable minds able to excel in a diversity of subjects. In all branches of civil engineering, including water supply, he displayed great gifts, and he was well known for his considerable knowledge of botany, geology and physics generally. At the age of thirty he established a school of horology and clock making, and was for a time its principal. He was a member of the Baden House of Representatives, and from 1855 to 1878 a member of the Reichstag. His portraits show him to have been a man of fine presence. A memorial to him may be seen at Triberg station.

## OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

### ARGENTINA

#### Lower Maize Tariffs

The Ministry of Public Works has issued the following regulations for the application of the reduction in the maize tariffs, amounting to a total of \$3,500,000 paper, which the privately-owned railways have agreed to make, in return for the special exchange facilities constantly referred to in the columns of THE RAILWAY GAZETTE of late. The reduction has been adjusted in accordance with a scale in favour of long hauls.

(1) Over a distance of 150 km. the reduction shall be 5 per cent.

(2) From 150 km. upwards the reduction shall increase progressively to 11 per cent. for a distance of 200 km.

(3) For any distance greater than 201 km. the reduction shall be a flat rate of 11 per cent.

(4) The reduced tariffs are to come into force on April 1, and shall be maintained until December 31 next, but should the reduction not yield the estimated total of 3,500,000 pesos by that date, the rebate shall be extended for a further period.

#### Week-end Diesel Railcar Service

The Buenos Aires Provincial Railway, which recently acquired four diesel, Sulzer-engined railcars—referred to in the *Diesel Traction Supplement* to THE RAILWAY GAZETTE of October 4, 1935—has inaugurated a week-end service at reduced rates with these cars between Avellaneda (Buenos Aires), La Plata, Azul, and Olavarria. The railcars leave Buenos Aires on Saturdays at 6.42 a.m., and La Plata at 8.15 a.m., arriving at Azul at 1.30 p.m. Passengers for Olavarria change at Ariel, arriving at Olavarria at 2.12 p.m. The return journey on Mondays from Olavarria is effected by steam train leaving there at 12.38, connecting at Ariel with the diesel service, which leaves Azul at 1.20 p.m., arriving at La Plata at 6.10 p.m., and Buenos Aires at 7.27 p.m.

There is only one class, and the trains for Azul connect there with an omnibus service to Tandil. The distance from Buenos Aires to Azul is 219 miles, and to Olavarria 237 miles; from La Plata to Azul, 186 miles, and to Olavarria 203 miles.

### INDIA

#### Megna Bridge Progress

The construction of the railway bridge over the Megna between Ashuganj and Bhairab Bazar on the Assam-Bengal Railway, which is one of the only two major works in hand on the Indian railways, has made remarkably satisfactory progress since it was begun in the middle of November last. All the shore wells have been pitched and sunk to nearly final depth, and the first deep water caisson has been placed in position and sinking

operations are in progress. Some 4,000 work-people are engaged, and as nearly half this number has been recruited locally the consequent relief in unemployment has caused much satisfaction in the district. The estimated cost of the bridge is Rs. 58-33 lakhs.

### SOUTH AFRICA

#### Surplus Shared by Public and Staff

Mr. O. Pirow, Minister of Railways, introducing the Railway Budget, said that the last financial year had been an exceptional one for the South African Railways, Harbours and Airways, yielding a surplus of over £3,000,000. [The disposal of this surplus was dealt with in our issue of April 10.—ED. R.G.] On the assumption that a portion of the increased revenue is in future to be regarded as nominal, certain permanent concessions to both the public and the staff will be made. Permanent concessions to the public, entailing a surrender of over £670,000, include a tariff reduction on all high-rated goods over all main lines, up to a distance of 200 miles, and a special reduction on the same classes of goods over all branch lines. The total amount available for the reduction of tariffs for 1936-37 is £550,000.

Harbour charges will be reduced by £40,000, Reef passenger fares by £60,000, and the adjustment of rates to the competitive area from ports will amount to a further £20,000. Other indirect benefits to the public involving a large expenditure are in the speeding up of train services, the improvement of rolling stock, additional harbour facilities, and increased air services.

#### Benefits to the Staff

Servants drawing the responsibility allowance will have that allowance increased in such a manner that the total amount to be drawn by the end of the next financial year will correspond with the amount surrendered under the cut of 1932-33. Alternatively they will, if they so desire, be allowed to draw the difference between the cut and the responsibility allowance in a lump sum. Where no responsibility allowance is being paid, the officer concerned will receive a refund of the amount of his cut, except in so far as his position may have been improved, wholly or in part, by his advancement to his maximum as from January 1, 1936. Men who have left the service, whether on pension or not, and the heirs of railwaymen who have died since the cut was imposed, will receive a lump sum refund of the cut.

Last year an amount of £100,000 was set aside as a tentative contribu-

tion to a widows' and orphans' fund. As a result of the investigations during the past year the administration has accepted the following essentials:—

(1) The scheme must be optional, but on a £ for £ contributory basis as between the administration and the servant.

(2) The benefits in question must be available exclusively to the dependents of the railway servant concerned.

(3) The administration's contribution will be up to 10s. a month irrespective of age or sex.

(4) If the insurance companies operating in the Union find themselves unable to co-operate with the administration on the above basis, the administration will establish its own insurance fund.

#### Ministry of Transport

Referring to the question of a Ministry of Transport, the Minister expressed the view that the co-ordination of, and elimination of waste from, all forms of transport by rail, by road, by air and by sea cannot be much longer postponed. He proposed therefore during the recess to consult with all interested parties as to the form such a department should take, and the powers that should be entrusted to it. The matter should be handled with the greatest circumspection and if real harmony between all sections affected is to be obtained, it should be dealt with in at least three phases.

The first stage would be to transfer to a Minister to be designated the Minister of Transport—in practice, it may be assumed that he would be the Minister of Railways—the administration of all legislation dealing with transport or transportation facilities. At the same time a board, part time at first, would be called into being to advise the Minister in connection with the administration of this legislation, and beyond that to survey the whole field of transportation and, after proper investigation, to suggest to the Minister new legislation designed to co-ordinate and stimulate all forms of transportation.

The second stage in the development of the Ministry would be reached when Parliament undertakes the scrutiny and correction of the legislation recommended by the board. Probably more than one Act would be required, and such legislation, affecting, as it must, private, municipal, and provincial rights and privileges, would be hotly debated.

In the third stage, the whole field of transportation having been covered by the legislation referred to, a decision would have to be reached as to the further development of the board, namely, whether it should become a full-time board and whether it, or an executive committee, chosen from among its members, should have executive as well as advisory functions.

#### Estimates for the Year 1936-37

The estimates for the year 1936-37 provide for a surplus of £9,903 not taking into consideration the additional amount of £50,000 required in respect

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of the refund of the depression cuts. Total revenue is estimated at £34,678,170 and expenditure at £34,668,267. These totals are made up of:—

	Revenue	Expenditure
Railways	£32,759,000	£28,275,178
Harbours	£1,745,300	£1,393,649
Steamships	£109,795	£102,881
Airways	£64,075	£39,559
Special appropriations	—	£4,757,000
	£34,678,170	£34,668,267

The special appropriations provided for are:—

	£
Betterment Fund	850,000
Deficiency in Pensions and Superannuation Funds	487,000
Rates Equalisation Fund (including Wages Stabilisation Fund)	1,000,000
Reduction of Branch Line Capital	250,000
Renewals Fund	1,250,000
Responsibility allowance	670,000
Writing out discount and expenses on pre-Union capital...	250,000
	£4,757,000

## BOLIVIA

### The Sucre-Potosi Railway

Advices from Sucre state that the Mayor of that city has announced that the railway between Sucre and Potosi will be finished next August, by which time the Parque Centenario station will also be ready to be opened to public service.

## JAPAN

### Railway Finance

The February 26 affair in Tokyo was the cause of a drop in railway revenues for the week February 26 to March 3, the first decrease in a long series of weekly increases. Receipts were Y. 9,280,000 (£540,000) or Y. 424,000 (£24,750) less than the corresponding week last year. Total revenues for the current year, including the week ended March 3, are up by Y. 23,793,000 (£1,390,000) or 5·2 per cent. as compared with last year.

## UNITED STATES

### Devastating Floods

Following hard upon the heels of the devastating floods in New England and Pennsylvania [described briefly in an editorial note on page 726 in our issue of April 17.—ED. R.G.] came further severe flooding in southern New England which state was bisected from north to south by a raging flood sweeping down the valley of the Connecticut river. It is yet too early to estimate the monetary damage to railway property, but it will run to millions of dollars. Traffic also will almost certainly show a temporary decline.

Railways in the Mississippi Valley are accustomed to floods, but in the

East such occurrences are relatively rare. In the Middle West floods are leisurely, in keeping with the flat terrain; in the lower Mississippi Valley, in fact, their approach is known for weeks in advance and precautions taken accordingly. In the East, by contrast, the topography is predominantly mountainous or rolling, and floods are constrained within narrow valleys where the waters achieve great powers of destruction. This, coupled with the fact that the railways follow the valleys of streams wherever possible, makes floods and damaged railroads synonymous terms.

The floods reached their record proportions this year by reason of an unusual winter accumulation of snow, most mountains and a large part of the rest of the region having from one to as many as three or four feet. On this a heavy, warm rain fell and the resulting run-off flowed down into streams, many of which were choked with ice. Eastern floods, unlike those in the Mississippi Valley, come suddenly and end abruptly. By the time these lines appear in print, therefore, they will be over and traffic, on most lines at any rate, will be restored to normal.

### Collection and Delivery Suspended

Free collection and delivery of merchandise, in less-than-full-carload consignments by the American railways would now be national in scope, except in some sections of the Far West, but for an eleventh hour action by the Interstate Commerce Commission, on March 31, in suspending until November 1 the effective date of the collection and delivery tariffs of the Eastern railways, which were to have come into effect on April 1. Free collection and delivery for shipments for distances up to 260 miles are already provided in Eastern territory by the Pennsylvania and the Erie. The purpose of the suspension of the tariffs on the other lines is, presumably, to permit a study by the commission of the collection and delivery costs of these railways so as to determine where the proposed free service by all the railways would constitute an undue burden upon them. Once more the commission has assumed (as it did in the Eastern passenger fares case) that it has greater knowledge of and regard for the financial welfare of the railways than their own managements.

But the suspension of these tariffs has other significant aspects. Quite recently the Western and Southern railways were permitted to put similar tariffs into operation, which action was considered to be a precedent for similar approval of the Eastern tariffs. In the East, however, about the middle of March, local cartage concerns stirred themselves into action against the proposed annexation of their functions by the railways. They sent their lawyers to the commission to protest against the railways' tariffs. But they did more than that; they launched a huge

campaign of political propaganda. They placarded their vehicles with bills such as "This truck protects you from railway monopoly" and "Suspend the store door tariffs." They held mass meetings and warmed themselves with fiery oratory. They published inflammatory advertising in the daily press, and circulated rumours that, if the tariffs were allowed to take effect, cartage drivers would be called out on strike.

The cartage operators, in short, acted as if the controversy revolved around a political measure rather than a legal cause before a quasi-judicial tribunal. The Interstate Commerce Commission took no cognizance of these novel tactics, and handed down exactly the decision for which the cartage interests prayed. Having won the victory, it will be natural for the victors to ascribe it to the methods they employed. If so, future proceedings before the Interstate Commerce Commission will be considerably more colourful, if less edifying, than they have in the past.

### Hope for Compromise on Passenger Fares

The managements of the Eastern railways, which have been ordered by the Interstate Commerce Commission to institute reductions in passenger fares from 1·8d. to 1d. a mile beginning June 2, have been holding many conferences in the effort to agree among themselves upon some proposal for a compromise with which to approach the commission. There appears to be little disagreement as to the desirability of some reduction, but many railroad men would prefer to set up several different schemes of fare reductions, in order to determine experimentally the arrangements likely to produce the greatest revenue, rather than to establish a uniform reduced fare throughout the territory. The railways will have until May 2 to reach an agreement, that being the last day for filing tariffs to become effective on June 2, the date when fare reduction schemes must be placed in effect under the order.

## ABYSSINIA

### Containers in the War

The Italian Ministry of War has established a special container station in Asmara, the capital of Eritrea, on which are based 260 insulated containers each with 1,700 kg. carrying capacity, and a volume of 4 cu. m. these are used to supply the Italian expeditionary forces with fresh meat. Three portable ice machines housed in standard containers produce 20 to 24 tons of ice a day. Each container is stocked by 300 kg. of ice and 150 kg. of salt carried in two gilled boxes. The empty containers are pre-refrigerated in Asmara with a temperature of 5° C. below the freezing point. In Massouah they are filled with meat from ships' cold storage and returned

to Asmara by rail or road. In Asmara ice and salt are replaced, so that the temperature remains at  $-4^{\circ}\text{C}$ .

According to a report recently submitted to the International Container Bureau in Paris by the delegate of the Italian Government for the construction and operation of containers, 50 tons of meat are carried every day in this way in refrigerating containers from Massouah—with its temperature of over  $60^{\circ}\text{C}$  ( $= 140^{\circ}\text{F}$ . in the sun—via Asmara to the front line at Makale and Adigrat. The containers have stamped sheet metal legs, 35 cm. (1 ft. 1 $\frac{1}{2}$  in.) high, and are carried on a special type of low trailer with elevating platform; they can be deposited on four small iron blocks which are placed under the legs when the platform is lifted. The report states that the container service functions in the roughest terrain.

## EGYPT

### The Mersa-Matruh Extension

The opening of this line—recorded in THE RAILWAY GAZETTE of April 10—marks the completion of a rapid piece of railway construction work, often carried out under trying and difficult conditions. Platelaying was pushed forward at the rate of nearly a mile a day, in spite of the fact that four reinforced concrete bridges, flood protection works and some blasting had to be undertaken. The labour employed numbered over 4,000, and not the least of the difficulties was the watering and feeding of this large labour force, in an area where sand and dust storms of fierce intensity had to be reckoned with.

## DENMARK

### Closing of State Railway Lines

The Danish Rigsdag has now decided that the two State Railway branch lines from Röde Kro to Bredebro, and from Ringsted to Frederikssund, shall be closed from May 15. next. The former, which is 36.5 km. (22.7 miles) long, is situated in South Jutland. When this part of Slesvig was given back to Denmark after the war, it was decided to build some more railways there, and as a result this line—which was constructed partly by the rebuilding of an older line—was opened in 1927. As the accounts have shown a serious deficit every year, without any hope of improvement, this decision has now become inevitable.

The second line is also one of the newest in Denmark, although the Bill for its construction was passed as long ago as in 1908. The complete line, as projected, ran from Nastved to Hilleröd, and was intended to carry through traffic from the south and west to Elsinore and onwards to Sweden: this, however, was prior to the opening of the Træleborg-Sassnitz ferry line. The part of the line from Nastved to Ringsted, which is double

tracked, was opened in 1924, and is used by the through expresses carrying the traffic to Germany. The section from Ringsted to Hvalsö is single tracked and was opened in 1925 and the single line from Hvalsö to Frederikssund was opened in 1928: the last part to Hilleröd has never been completed. The State Railways have constantly objected to the completion of the scheme, on the grounds that there was no need for the line, and this is also clearly proved by the small volume of traffic handled. Eventually it was decided by the Rigsdag, that work on the last part of the section should be stopped: also that the line from Ringsted to Frederikssund should be allowed to remain open for a further period of only two years, and that if the population in the district wanted to keep the line open, it would have to justify this action by using it to a much greater extent than before. The period has now elapsed, and the financial results show that there has been a further heavy fall in traffic on the line, and hence the decision to close it. The length of the section to be closed is 57.0 km. (35.5 miles).

## HOLLAND

### Co-ordination of Transport Bill

The Co-ordination of Transport Bill was passed on April 1. One of its principal measures permits the Minister to introduce the licensing of both goods and passenger vehicles, limiting the routes to be followed, number of vehicles on each route, number of services and hours of duty, and providing for the supervision of tariffs, timetables, and safety measures, with insistence upon third-party insurance. The Minister will be assisted in his supervisory duties by an advisory committee, upon which the various more important transport organisations are represented.

## FRANCE

### Gas-proof and Bomb-proof Shelters on Paris Metro

Numerous gas- and bomb-proof shelters for protection against air raids have been arranged by the Paris Municipal Council in large cellars in various parts of the city and others are in preparation. Printed notices have been posted in all houses directing the attention of the inhabitants to these shelters in case of need. In this connection a proposal to provide underground shelters at a number of Paris Metro stations for use in the event of bombing raids has been made by M. Duteil, a member of the Municipal Council. It is estimated that eight or nine months will be required to prepare and carry out a programme for the construction of fifty underground shelters. The cost is placed at fr. 2,000,000 each, or one hundred millions for the fifty shelters.

## CHINA

### Canton-Swatow Railway

An important new line is to be constructed from Canton to Swatow, a distance of some 300 miles. It will terminate in Swatow as, and take the form of an extension of the existing 26-mile Swatow-Chaochow line. Beyond Chaochow the new line will pass through Puning, Lufeng, Haifeng, and Weiyang (Waichow) to Shaho in Canton. The estimated cost of construction is a little over \$300,000,000, and the time likely to be taken is about five years. The project is to be financed out of the new Railway Construction Loan. The Ministry of Railways, Provincial authorities, and representatives of the Canton-Kowloon, Canton-Hankow, and Chaochow-Swatow Railways will co-operate in preparations for the construction.

### Nanking-Hunan Railway and Miscellaneous News

The projected Nanchang-Pinghsiang section of the Chekiang-Kiangsi line will be re-named the Kiangsi-Hunan section, and will become part of what is to be known in future as the Nanking-Hunan Railway.

Agreement has finally been reached regarding the resumption of through freight traffic between Peiping and Mukden via Shanhaihuan, which is to come into operation early in April.

## MANCHUKUO

### Hsinking-Hulan Arshan Construction

As previously recorded in these columns, this line was completed and opened for traffic as far as Solon last year—a total distance of nearly 600 km.—the longest continuous new line undertaken by the State Railways administration since 1933. The Taoan (Pachengtzu)-Wangyehmiao section of this line had however been constructed under the Chinese régime about seven years ago, but a considerable amount of work had to be done to rehabilitate it.

The most interesting construction section is, however, now nearing completion, and includes the crossing of the Hsingan range of mountains—with heavy engineering works—between Solon and Hulan Arshan. Construction and goods trains are now running through to the Hulan Arshan and it will not be long before the line is open for passenger traffic. Passengers from Hsinking and Taoan are now carried by buses, not only to Hulan Arshan, but onwards to Hailar on the North Manchuria line. Hulan Arshan is famous for its hot springs, and with its cool mountain breezes, is likely to become a summer resort. There is considerable tunnelling on the Hsingan mountain section: a description, by an experienced Japanese railway construction engineer, of this line appears in the March 1 issue of *The Manchurian Month*.

## PROPOSED RAILWAY IMPROVEMENTS IN PALESTINE

*Abstract of Sir Felix Pole's report, which recommends a new cut-off line to bring Jaffa on to the main route between Jerusalem and Haifa, and an extension in Jaffa to the port*

WE have received from the Crown Agents for the Colonies a copy of the report by Sir Felix J. C. Pole on Proposed Railway Improvements in Palestine. An interim report on this subject had previously been drawn up by the Road-Rail Co-ordination Committee, presided over by Mr. Johnson, and it was on the proposals therein contained that Sir Felix was asked by the High Commissioner for Palestine to report. By way of preliminary Sir Felix Pole quotes the following extracts from that interim report:—

"The main subject of criticism of the railways is the existence of the Lydda Junction station through which all main line traffic passes. It is at this point that the Jerusalem-Jaffa line intersects the Kantara-Rafa line. Lydda Junction is a heritage of military occupation of Palestine. It is a bottleneck through which the traffic of Palestine trickles with inevitable delays due to the necessity for the breaking up and re-forming of trains arriving at the junction, except in the case of through trains, which are few. The delays caused to traffic are considerable and result in great expense to users and the uneconomical use of wagons; and there is evidence to indicate that the railways are losing a great deal of traffic because of the delay in handling traffic.

"Moreover Jaffa and Tel-Aviv together are the largest urban area in the country. Jaffa is at present the main port of entry for commodities destined for Jerusalem, Jaffa, and Tel-Aviv. The development in the area of the citrus industry generally is proceeding at a rapid rate. The potentialities of the area for both incoming and outgoing traffic are considerable. Yet there is no railway communication to the port, and all trains to and from Haifa, Jerusalem, Jaffa, and Tel-Aviv have, with very few exceptions, to be marshalled at Lydda.

"The existing railway stations at Jaffa and Tel-Aviv are also inadequate and unsuitable. That of Jaffa was built as a terminus of the narrow gauge pre-war Jerusalem-Jaffa line; it is approached through the narrow streets of Jaffa and the traffic congestion is considerable. That of Tel-Aviv is inadequate and incapable of extension except at great cost; and has no accommodation for goods traffic.

"A scheme has been proposed by Mr. Green, a member of our committee, who held for many years the post of Chief Engineer on the East Indian Railway, for the construction of a loop line from a point on the main line north of Lydda opposite Jaffulya, through a central station on the outskirts of Jaffa and Tel-Aviv, to Rehovot on the main line south of Lydda; and the construction of a short stretch of line from Rehovot to Ni'a on the Jerusalem-Jaffa line east of Lydda.

"It is estimated that the kilometrage of routes will be changed as under:—

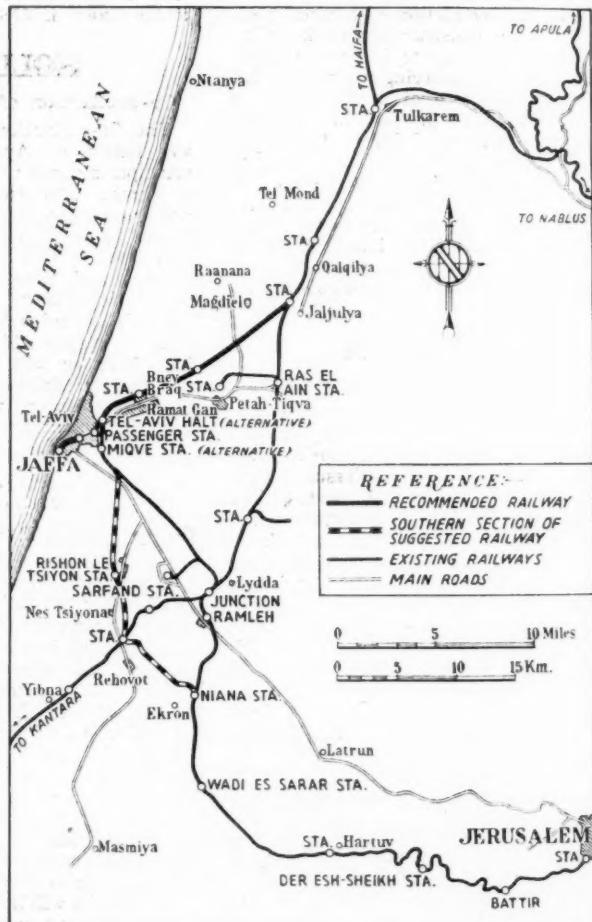
	Existing route kilometres	Proposed route kilometres
Haifa to Jaffa ..	130	104
Haifa to Kantara ..	414	417
Jerusalem to Kantara ..	376	363
Jerusalem to Jaffa ..	87	84
Haifa to Jerusalem ..	178	188

"The General Manager of the Railways is in general agreement with the schemes. The saving on transportation costs by reason of the shortened routes will more than balance the loan charges on the additional capital; and in any case the increased traffic prospects from the carrying out of the scheme, and the more economical use of wagons and locomotives which should result, justify a proper technical and economic survey."

This scheme Sir Felix Pole divides into three parts,

namely:—(a) Improvement of railway communication to, from, and between, the ports of Jaffa and Haifa, by providing a new section of railway connecting Jaffa with the main line of the Palestine Railway near Magdil. This line would also provide railway facilities in a rapidly developing area. (b) The construction of a line from Jaffa southwards through Rishon-le-Tsiyon to connect with the main line near Bir Salim and thence to a junction with the Jerusalem railway at Ni'a. (c) Provision of a station for Jaffa and Tel-Aviv. The committee also revived the question of extending railway facilities to the port of Jaffa.

Having discussed the scheme in Jerusalem with Mr. Johnson, Mr. Webb, General Manager of the Palestine Railways, and others, Sir Felix Pole proceeded to Lydda, Tel-Aviv, and Jaffa. He inspected the existing railway accommodation, then traversed the course of the proposed railways, and subsequently interviewed in Jaffa represen-



Sketch map showing suggested new railway approaches to Jaffa and the line which Sir Felix Pole recommends for immediate construction

tatives of the town and trade of Jaffa, Tel-Aviv, and surrounding districts, including representatives of three bus companies and one goods transport company. The majority of the representatives approved the scheme for a railway from Jaffa to connect with the present main line at Magdziel, and for extending the railway along the northern approach to the quay at Jaffa. Different opinions were expressed as to the new Jaffa-Tel-Aviv station, some witnesses favouring a site in the vicinity of the Jaffa-Jerusalem road. There was no strong support for the proposed railway from Jaffa to Bir Salim and Ni'ana, and opposition was expressed to removal of the present Jaffa-Lydda line.

In the course of his general observations Sir Felix remarks that the outstanding features of the problem are: (a) the wonderful growth of population and industry that has taken place in the last few years, and (b) the evidence that there will be a further rapid annual growth, for which adequate transport facilities must be provided. The fact that a Road-Rail Co-ordination Committee has been appointed indicates that the Government intends to adopt a policy of co-ordination, which should embrace railway, air, and road transport. In Palestine the railways are national property; therefore it is in the interest of the State to retain them as the principal means of transport, by providing rapid, reliable, efficient, and cheap facilities. Moreover, it must be borne in mind that Palestine is the connecting link between Europe, Asia and Africa, and the Palestine Railway system must become increasingly important as a link in an international system of railways. The Haifa-Baghdad Railway and the possibilities of a railway to the gulf of Akaba; also a direct line connecting with Port Fouad, are projects to be kept in mind in this connection. Road transport in Palestine has increased to a marked degree, and new roads are necessary to meet the transport needs of the country. As far as possible, new roads should be so located as to facilitate interchange of traffic between road and railway.

#### Jaffa-Haifa Communications

The outstanding problem, in Sir Felix Pole's opinion, is that of improving railway transit to, from, and between Jaffa and Haifa, thereby providing for the very rapid growth of freight traffic which is to be anticipated in the next five years. It is most undesirable that by far the largest towns in Palestine (Jaffa and Tel-Aviv) should continue to be served by a branch line of railway; that traffic passing between Jaffa and Haifa should be subject to delays at the junction station; and, if not delayed, traverse two sides of a triangle. The quantity of oranges to be exported from Palestine will increase annually to a figure which must inevitably tax the most efficient railway and harbour facilities. Before this year (1935) the export of oranges has never exceeded 5,500,000 cases, whereas groves have been planted to yield within the next five years 20/25,000,000 cases.

Sir Felix Pole recommends that the line (18 kilometres in length) from Jaffa to join the main line at Magdziel should be authorised immediately in order to improve railway communication to, from, and between Jaffa and Haifa and prevent delays at Lydda. Further, as incidental and complementary to this scheme, that the following works should be authorised and carried out, forthwith:—(a) Construction of a new passenger station for Jaffa and Tel-Aviv, adjacent to the Haifa Road and the present Tel-Aviv station; (b) Reconstruction of the present Jaffa and Tel-Aviv stations to adapt them for the receipt, despatch and storage of goods; (c) Extension of the railway from Jaffa station to the port. The estimated cost is £P656,124. Large as it is, it is comparatively insignifi-

cant in relation to the annual value to Palestine of an additional ten million cases of citrus fruit—which figure may be regarded as certain of realisation. Developments in Palestine have been so rapid that there can be no reasonable doubt as to increase of traffic warranting the expenditure. Further, the Road-Rail Co-ordination Committee has recorded its view that saving of transportation costs by reason of the shortened route may be expected to balance the loan charges on the additional capital. Distances at present are: Haifa-Tel-Aviv 128 kilometres, Haifa-Kantara 414·4 kilometres. Running via the line proposed the distances would be Haifa-Tel-Aviv 104 kilometres, Haifa-Kantara 424 kilometres.

Retention of the line through Tel-Aviv to Jaffa is recommended, though it is desirable that the level crossings thereon should be superseded by bridges. The existing stations at Tel-Aviv and Jaffa are admirably situated in the centre of each town. Both stations have recently been slightly enlarged and each is handling over 100 wagons a day. At Tel-Aviv there is some congestion, but at Jaffa the congestion is very serious indeed. These stations should be enlarged and improved.

#### Jaffa-Ni'ana Railway Proposal

As to the proposed construction of a line from Jaffa to connect with the main line near Bir Salim and thence to the Jerusalem line at Ni'ana, Sir Felix Pole is of opinion that it is not required from the point of view of railway operating, while its advantages in reducing the distance by railway from Jaffa to El Kantara and Jerusalem respectively, are not such as to justify the expenditure involved. He notes further that the scheme outlined by the Road-Rail Co-ordination Committee envisaged removal of the present Jaffa-Lydda-Rehovot line. In his opinion this would be a retrograde step as the railway traverses a highly developed area, which would be affected detrimentally by its removal. On the contrary, he feels that a new intermediate station at Es Safirya would be justified. Further, the accommodation at Lydda, most of which was provided after the war, should continue to be valuable from a railway point of view. Although he takes the view that the Jaffa-Ni'ana line is not required he points out that the district which would be traversed by the section Jaffa-Richon-Bir Salim is developing rapidly and that therefore a survey should be completed and no opportunity lost of securing land for a future railway or for roads or even tramway feeders if it can be purchased at a reasonable price or powers obtained by ordinance for future acquisition, should it be desired.

The question of providing a harbour at Jaffa, available in all conditions of weather, will become increasingly pressing. Meanwhile Sir Felix Pole recommends the extension of the railway from Jaffa station to the quay to serve the lighterage port as it exists and is contemplated. The cheapest scheme is estimated to cost £P40,000. This will not provide ideal facilities, but would work in with any future harbours scheme. This extension was recommended by Mr. P. A. Anthony in his report on the Palestine Railways, prepared in 1925. Four alternative schemes and their cost are tabulated in the report. Sir Felix Pole prefers Scheme 1, to cost £P616,124, made up of £P504,150 for Jaffa-Magdziel line, £P5,730 for Tel-Aviv station alterations, £P35,805 for Jaffa station alterations, and £P70,439 for Jaffa and Tel-Aviv passenger stations. On the Jaffa-Magdziel cut-off line new stations will be provided at the junction (Magdziel) at Petah Tiqva, and Ramat Gan. The price of land is estimated at £P233,840. The allowance for track material covers the P.R. standard 162 lb. steel sleepers, new 75 lb. section flat bottom rail, 36 ft. long, with 16 sleepers per rail

length. There will be 16 unguarded level crossings and two level crossings with gates at Ramat Gan station. To increase the capacity of the existing goods yard at Tel-Aviv an additional loop should be constructed and a new goods platform made in the place of the present passenger station at a cost of £P5,730. At Jaffa two strips of land adjoining the station should be bought to provide for a large orange loading shed and an extension of the existing goods siding between the end of the station and the Law Court, and on the south side of the station for three additional loops and two dead ends with a new goods shed and a wide asphalted yard. The cost of this work would be £P35,805.

For the proposed line from Jaffa station to the port two routes are possible: the first entering the port at the north, and the second at the south end. The northern gates of the port are only 850 metres from the station.

It is possible to run a line from the station to the nearest end of the port by traversing only 300 metres of private property. This could be carried down the existing northern approach road and through the port as a double-line tramway with crossovers at the end, at an estimated cost of £P40,000. Alternatively, the line might be taken down the outside of the road, and the existing port office rebuilt on columns, so as to allow either the road or railway to pass underneath, thus avoiding interference with the northern approach road. The cost of this would be £P79,000, the addition being due to the cost of seawalling and the rebuilding of the port office. A southern approach to the port would be over 6 kilometres long. Construction would be very heavy as the country is hilly, involving a long tunnel to carry the line to the sea front and 1.6 kilometres of seawalling along the beach. The cost of such a line would be about £P293,000.

## MODERN RAILWAY DEVELOPMENTS IN JAPAN

*To meet a rapidly expanding traffic, up-to-date organisation and equipment are noteworthy throughout the Japanese railways: amenities for the staff are also remarkably comprehensive*

THE Department of Railways is responsible for the supervision of all railways in Japan, and consists of a central and six regional offices. The central office is directly under the Minister for Railways and deals with matters of an imperial nature relating to the Government Railways as well as the supervision of local railways and tramways. Each of the six regions is a complete unit under a director invested with power to conduct, at his own discretion, all matters except those of a general nature requiring the decision of the central office. The Minister is assisted by three advisory bodies: the Railway Council, which the Minister is bound to consult upon such matters as the construction of new lines, acquisition of local railways, &c.; the Commission of Tourist Industry, established for the promotion of the tourist industry in Japan; and the Advisory Committee for Investigation of Rates and Fares.

During the last few years traffic has been increasing by leaps and bounds on the railways generally due to expansion of foreign trade, rationalisation of industry and the increased purchasing power of the people. At the same time great efforts have been made to popularise travel by providing excursion, holiday, pilgrim and foreign tourist facilities.

### EXCURSIONS, INCREASED COMFORT AND PUBLICITY

Cheap evening excursions have been introduced and an arrangement similar to the British holiday season tickets is in force during the summer months. Marine excursions are also run by ferry boats belonging to the railways. Icewater is provided on certain express trains during the summer, and the use of third class sleeping cars has been considerably extended. Commercial advertising on railway sites has been developed and propaganda designed to increase rail travel is being undertaken by means of literature, posters, travel exhibitions and films.

In recent years the stock of covered, open and special wagons has been increased considerably, and the warehousing of merchandise is now undertaken. Tests and experiments have been made in the packing and loading of goods, and the results reported in a booklet distributed free of charge to traders and other interested parties. Timetables have been revised, resulting in a marked ac-

celeration of passenger trains, and in a great reduction in the transit times of goods traffic. Suburban services have also been extended and accelerated. New stations are constantly being opened, and on the Government Railways alone the number has increased by about 1,200, and the route mileage by over 5,000 kilometres, in the last 15 years.

### IMPROVEMENTS IN ROLLING STOCK AND SIGNALLING

Recent locomotive improvements include equipment with electric headlamps, feed-water heaters, safety appliances and better wiring on electric locomotives. The installation of continuous brakes on goods stock, automatic signalling, as well as colour-light and position-light signals are, however, among the most important developments. A modern Research Department is in being and conducts chemical, physical, mechanical, electrical and structural researches.

### EDUCATIONAL, HEALTH AND SOCIAL ORGANISATIONS

Special attention is being given to the training of railwaymen, and each region has its own institute for the education of pupils in the general features of railway business. A system of special training is available for approved applicants, and railway scholarships at the universities are open to the younger members of the staff. The Government Railways maintain six hospitals and four sanatoria for the treatment of employees and their families, and also sick and injured passengers. Staff organisations include a Relief Association, to which employees and the Government contribute, and from which accident, sickness, retirement and other grants are made; a Health Institution which makes recuperation, accident, maternity and other allowances; a Purchase Union which supplies foodstuffs, &c., at cheap rates; a Loan Union for advancing money at a low rate of interest; and a Savings Union for encouraging thrift. For the purpose of preserving understanding between executive and employees there is a Railway Workers' Committee, divided into 53 sections. This committee considers questionnaires submitted by the authorities and expresses its opinion upon matters of interest common to all staff. There is also a Railway Officials' Committee, divided into 13 sections, which affords the clerical staff similar opportunities for the discussion of common problems.

## NEW ARTICULATED LIGHT-METAL COACHES OF THE NORTHERN RAILWAY OF FRANCE

*Three-coach articulated unit with aluminium-magnesium alloy bodies assembled by welding and attached to a welded steel underframe of braced girder construction. About 37½ per cent. saving in weight is effected, compared with ordinary steel coaches*

By MM. CHATEL and YOLLANT, *Chemin de fer du Nord*

THE welded steel coaches introduced by the Northern Railway of France in 1924 have proved so satisfactory in service that the company has now taken the next logical step in the reduction of dead weight by the extensive use of light-metal alloy instead of steel in a welded construction. A new alloy of aluminium and magnesium is used for the bodies of the new coaches, and though steel is retained for the underframe and some of the other parts as a precautionary measure, the steel used is high-tensile material and the mechanical design reduces dead weight to a minimum for the materials employed. The possibility of using light-metal alloys for the underframe will be examined in the light of further experience. Meanwhile, the sprung weight has already been reduced to such an extent that the adjoining ends of two coaches can be carried by a single four-wheel bogie without overloading the axles. The accompanying illustrations of an articulated three-coach unit, built on these lines by the Ateliers d'Hellemmes, are reproduced by the courtesy of the *Revue Générale des Chemins de Fer*, in which the authors, M. Chatel, Ingénieur Principal Adjoint au Service

Central des Ateliers de Machines, and M. Yollant, Ingénieur, Chef du 2e Arrondissement du Matériel Roulant, first described the new coaches.

The new coaches consist essentially of a light-metal body mounted on a lattice steel girder, which decreases in depth at each end and is designed to be capable of carrying the whole load, with a maximum deflection of 30 mm. (1.181 in.) under a uniformly distributed load of 30 metric tons (29 tons 10 cwt.). Thus, no dependence is placed on the light-metal body for the general strength of the coach framing, and there is no risk of damaging the body by excessive deflection of the lattice girder. Actually, however, the body contributes appreciably to the stiffness of the vehicles, as proved by the test data given later.

The depth of the lattice girder is the maximum permitted by the loading gauge and the conditions of erection. The flanges consist of Grey rolled sections cut in halves, the lower tee being bent to the desired shape and the flanges cut away, so that the moment of inertia of the beam is proportioned to the load at each section. The bracing members consist of two 3 mm. (0.118 in.) plates, stamped and spot welded. The whole of the assembly is effected by arc welding. (Figs. 9 and 10.)

The general form of the body resembles the tubular construction of the existing all-steel coaches. Referring to Figs. 1 and 5 the body, 2,888 mm. (9 ft. 5½ in.) in width, consists of two welded shells forming the sides and extending to the longitudinals of the roof, which is itself a strip 1,700 mm. (5 ft. 7 in.) in width, riveted in place after attaching the side shells to the underframe.

The light-metal used for the body is G7 metal, supplied by the Société Le Duralumin. It is an aluminium-magnesium alloy, containing 7 per cent. magnesium, and was selected in preference to duralumin because of its good mechanical qualities in the annealed state, viz., tensile strength not less than 36 kg. per sq. mm. (22.9 tons per sq. in.), elastic limit 18 kg. per sq. mm. (11.4 tons per sq. in.), and elongation 18 to 22 per cent. The availability of this material made possible a welded construction without subsequent heat treatment, which would be impracticable with structures 17 metres (55 ft. 9½ in.) or more in length. It was hoped to make the entire body a single-piece structure by welding but, for the present at any rate, practical difficulties necessitate the riveting of the roof.

Arc welding is used and a special technique has been developed,\* the main features of which are:—

- (1) The reinforcement of the welds by ribs to compensate the decrease in quality of the metal.
- (2) Preheating of the parts to be welded, to about 280° C. (536° F.).
- (3) The molten metal being very fluid, all welds are made in a horizontal plane, using a pivoted erecting frame to facilitate the necessary adjustments.

The sides of the body are thus built up to their total length of 17 or 20 metres (55 ft. 9½ in. or 65 ft. 7½ in.)

\* Fully described by M. Lancronon, Chief Mechanical Engineer of the Northern Railway of France, in *Revue de l'Aluminium*, September-October, 1934.

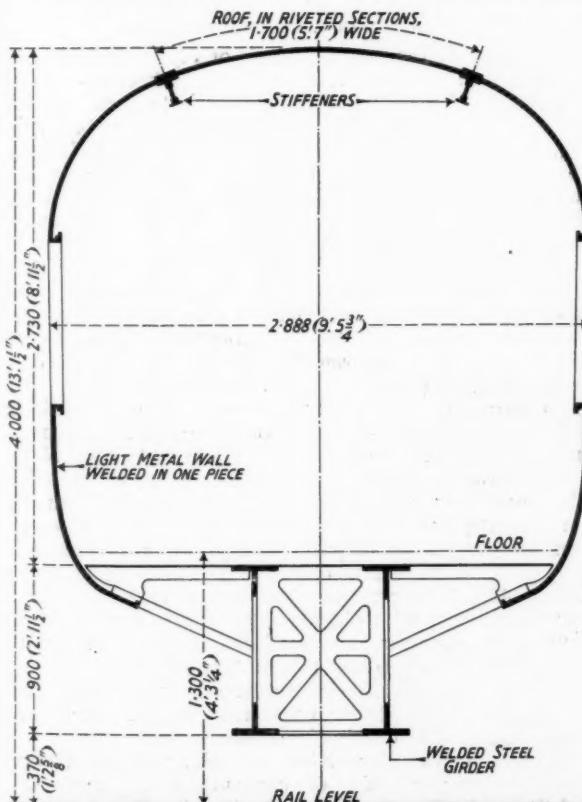


Fig. 1—Central cross section of light-metal coach body with lattice steel underframe

as the case may be (Fig. 1) from curved panels of 3.2 mm. ( $\frac{1}{8}$  in.) sheet, 1,500 mm. (4 ft. 11 in.) in width, with stiffening rings of  $60 \times 60 \times 6$  mm. ( $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{4}$  in.) tee and 6 mm. ( $\frac{1}{4}$  in.) sheet. Many different fluxes have been used, none entirely satisfactory. Repeated scrubbing of the welds with hot water is essential to prevent subsequent chemical action between flux and metal. The body is attached to the lattice undercarriage by means of steel brackets and square tubular steel stays, as shown in Fig. 1; all the joints are arc-welded. The joints between light-metal and steel are painted with Néobitum to prevent electrolytic corrosion.

The window frames are formed by flanging, and the door frames are in four parts joined by welding. The end stampings are stiffened by tees and their central portions are of 6 mm. ( $\frac{1}{4}$  in.) sheet forming a shock-resisting caisson (Fig. 7). The double walls for the sliding doors are of 5 mm. (0.197 or about  $\frac{1}{16}$  in.) on the compartment side and 3.2 mm. ( $\frac{1}{8}$  in.) on the other.

Static load tests on the completed vehicles show a deflection of 17.1 mm. (0.673 in.) at the centre of the 17-metre (55 ft. 9 $\frac{1}{2}$  in.) intermediate coach, and 13.3 mm. (0.524 in.) at the centre of the end coaches, under a uniform load of 1,760 kg. per metre-run (1,183 lb. per ft.-run) in both cases (total load 29 tons 10 cwt. and 34 tons 13 cwt. respectively), the distance between bogies pivots being 17.5 metres (57 ft. 5 in.) in each coach (Fig. 4). These figures prove that the body contributes substantially to the strength of the whole, the deflections of the lattice girder undercarriages of the intermediate and outer coaches being 30.6 mm. (1.205 in.) and 27 mm. (1.063 in.) respectively when the girders alone are subjected to the same conditions of loading. No abnormal deformation has been observed in the light-metal parts, but it has been considered advisable to reinforce certain elements in the upper part of the roof.

#### Bogies and Articulation

The bogie frame, illustrated by Fig. 11, is of crossed triangular form without end cross stays. The steel used is the 1.5 D.F.O. Schneider alloy containing 1.5 per cent. nickel, 0.6 per cent. chromium and less than 0.17 per cent. carbon. This material has a breaking strength of 60 kg. per sq. mm. (38.1 tons per sq. in.), and elastic limit of 42 kg. per sq. mm. (26.7 tons per sq. in.), and 18 per cent. elongation. A cross section of the tubular side members is shown in Fig. 2. The cross stays are of similar form and the whole of the bogie frame is assembled by arc welding using special high-tensile electrodes. The finished frame weighs 780 kg. (1,720 lb.), compared with 1,180 kg. (2,601 lb.) for the cast steel frame hitherto in use. The bolster is designed on the same principle as the frame. The bogie is further distinguished by independent braking, for which there are used Alpax cylinders, a lightened rigging with equalising beams of 1.5 D.F.O. steel, and brake truss bars of cast nickel-steel (Haine St. Pierre and Lesquin patent).

The suspension is of the classic Pennsylvania type. The compensator yokes are of special nickel-chromium-molybdenum steel, 20 mm. ( $\frac{3}{4}$  in.) in thickness. Isothermos axleboxes are used, with bodies of light-metal. The bogie weighs 5,300 kg. (5

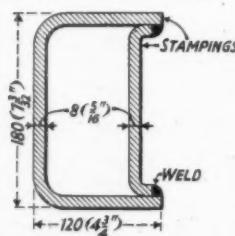


Fig. 2—Cross section of bogie side frame in the plane of the elliptic springs

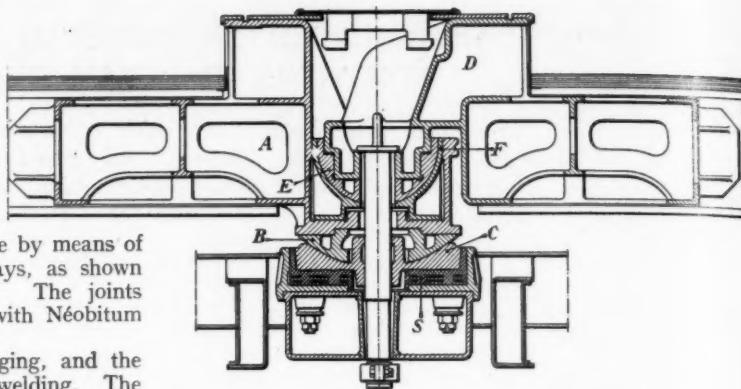


Fig. 3—Sectional view of articulation pivot

tons 4 cwt.) without brake gear, or 5,950 kg. (5 tons 17 cwt.) complete, and is designed for a load of 30 metric tons (29 tons 10 cwt.) in normal service.

The method of articulating the combination of coaches is illustrated by Fig. 3. The female pivot frame A, attached to the underframe of one coach, rests on the spherical bearing B which is carried by the centre plate C, insulated from the bolster by the Spencer rubber damper S. Inside A there is the male component D, attached to the other coach and riding on the spherical bearings E, F (both of bronze). The pivot pin has clearance as shown and is only a safety device. The castings A and D are both of quality BS steel (Spécifications Techniques Unifiées).

#### Fittings and Equipment

The floor of the new coaches is of Plymax panels, consisting of plywood covered with zinc sheet above and aluminium sheet below. These panels, 26 mm. (1 1/2 in.) in thickness, weighing 30 kg. per sq. metre (6.14 lb. per sq. ft.) are step-jointed and fastened to the underframe by aluminium cover plates, using steel bolts, the nuts of which are secured by spot welds. A coat of Néobitum is applied between the aluminium and the steel frame, and the floor is covered with linoleum.

The platform doors, of light alloy, are of the same type as in the suburban steel coaches; the two leaves slide simultaneously (Faivelay system) and pneumatic operating gear is fitted. Double-leaf sliding doors are also provided between the platforms and the compartments (Fig. 6) and at the vestibule connections. The upper parts of the compartment windows slide vertically and are kept at any desired position by Klein balancers; no water can enter between the body and lining plates.

All three coaches have third-class accommodation. Seats with hollow-moulded wood battens and tubular metal frames and supports are placed on each side of a central gangway as shown in Fig. 4. The weights of the 6, 4, 3 and 2-seat units are 27, 20, 18 and 15 kg. (59.5, 44.0, 39.7 and 33.0 lb.) respectively. The body plates are lined with different lagging materials, Expansit cork in two coaches and sprayed asbestos in the third. The inside lining plates are of "G.7" alloy 1.7 mm. ( $\frac{1}{16}$  in.) in thickness, lagged in the same way as the body plates and secured to the body frame rings by aluminium cover plates and duralumin screws.

General lighting is provided by ceiling fittings, two per stall, set symmetrically on each side of the centre line of the roof (Fig. 6). Steam heating is effected by light metal radiators let into the sides of the compartments (Fig. 6), and by two 7-element radiators on each plat-

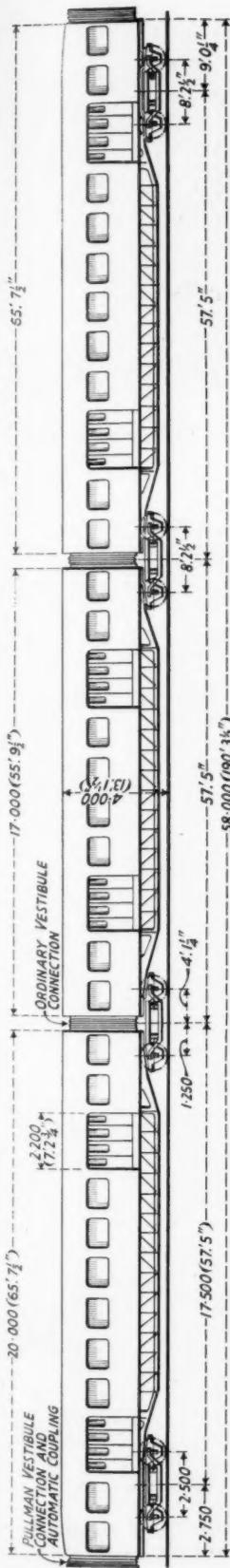


Fig. 4—Leading dimensions and seating plan of new articulated coaches with light-metal bodies and steel-lattice undercarriages. Built by the Ateliers d'Hellemmes for the Northern Railway of France

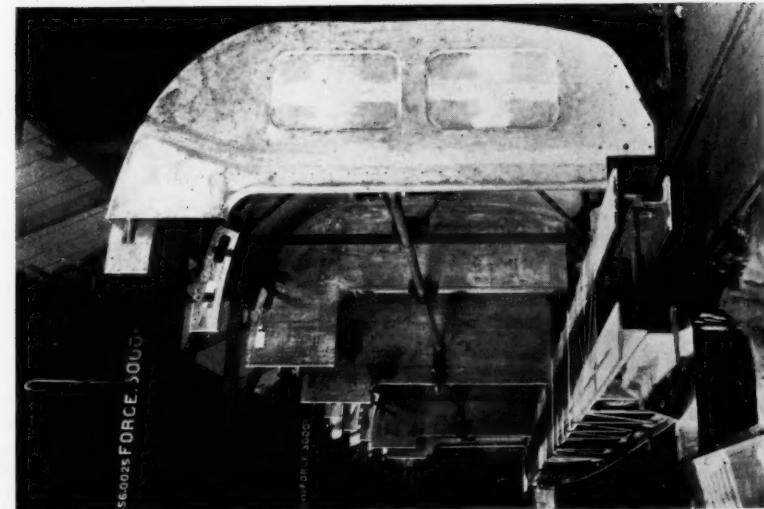


Fig. 5—Completed underframe with half-body attached

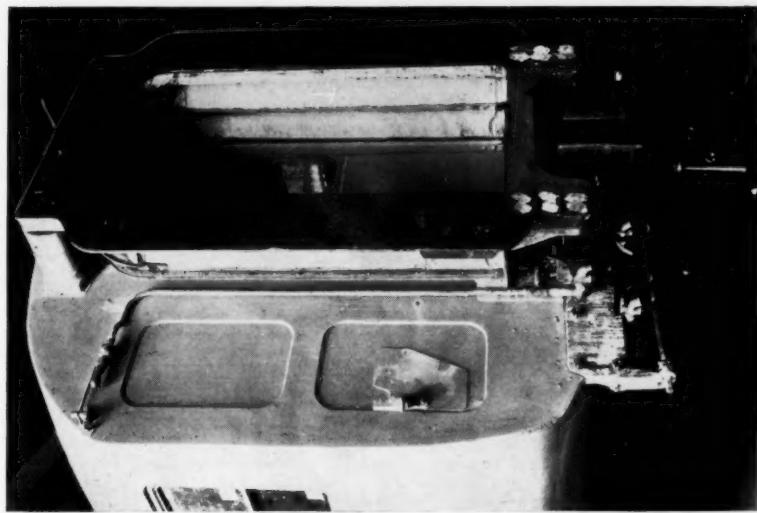


Fig. 6—Interior of coach before fitting seats. Showing doors, windows, lighting fittings and radiators

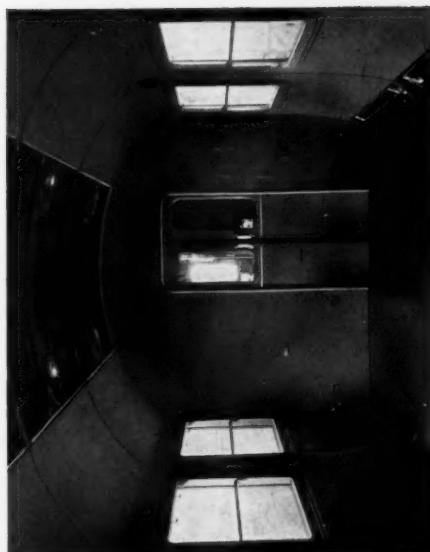


Fig. 7—Welded end walling and vestibule connection



Fig. 8—Articulated light-metal coaches of welded construction. Built by the Ateliers d'Hellemmes for the Northern Railway of France

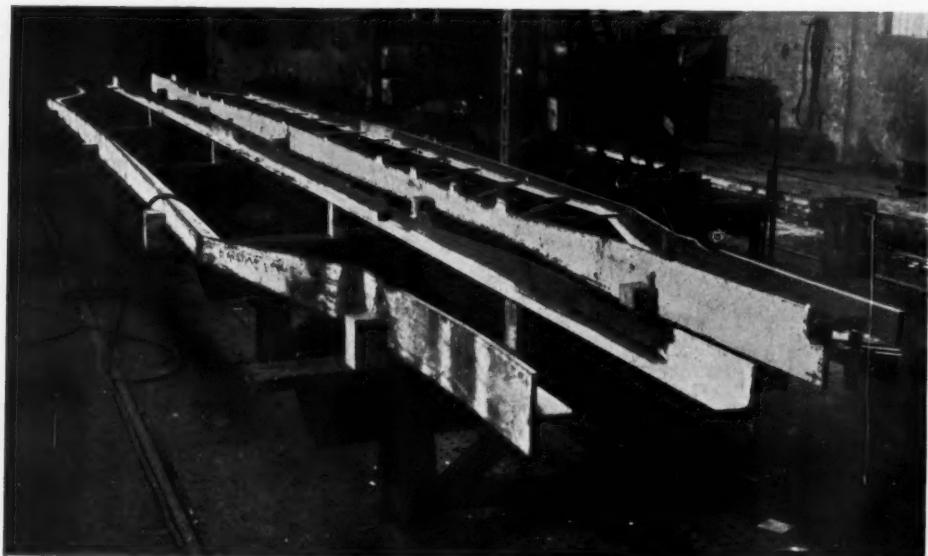


Fig. 9—Rolled flange sections and (in background) web members in place



Fig. 10—Central portion of welded steel lattice girder

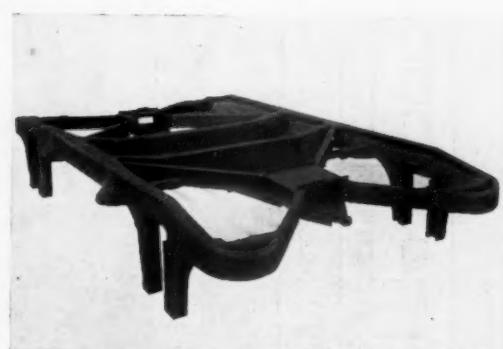


Fig. 11—Welded steel bogie frame of tubular construction

## COMPARISON BETWEEN WEIGHTS OF STEEL AND LIGHT-METAL COACHES OF THE NORTHERN RAILWAY OF FRANCE

	Steel coach, 98 seats		Light-Metal construction						Saving in weight referred to total weight of steel coach
			End coach, 98 seats; centre coach, 78 seats			Single 98-seat coach			
	Kg.	T. C. Q.	Kg.	T. C. Q.	Kg.	T. C. Q.	Kg.	T. C. Q.	Per cent.
Body .....	10,500	10 6 3	3,550	3 9 3	3,330	3 4 6	3,730	3 12 6	16
Girder undercarriage	7,100	6 19 3	7,000	6 17 3	5,600	5 10 1	7,050	6 18 3	—
Drag and buffer gear	2,400	2 7 1	650	— 12 3	Nil	Nil	440	— 8 3	4
Vestibule connections	1,500	1 9 2	850	— 16 3	200	— 3 4	680	— 13 1	2
Internal equipment ..	7,750	7 12 2	6,200	6 2 0	5,570	5 9 2	6,420	6 6 1	3.5
Bogies and brakes ..	13,750	13 9 6	4 x 5,950 kg. (5 t. 16 c. 1 q. each for 3-coach unit)				8,600	8 9 1	12
Total .....	43,000	42 6 1	75,000 kg. (73 t. 16 c. 1 q.) for 3-coach unit				26,920	26 9 3	37.5

form. Light metals are used extensively in the pipes and fittings for steam heating supply. The brake pipes, however, are of steel throughout. Perforated aluminium parcel racks are provided, and the Boyriven ventilators are of light metal. The painting of the body, inside and out, commences with a coating prepared specially for aluminium alloys.

#### Saving of Weight

The accompanying table shows the weights of an all-steel 98-seat coach, the end and middle coaches of the new 3-coach unit, and (calculated from the latter) the approximate weight of a hypothetical 98-seat single coach of the new light-metal construction. It will be seen that the principal saving is on the weight of the body, viz. 3,730 kg. (3 tons 12 cwt. 6 qr.) compared with 10,500 kg. (10 tons 6 cwt. 3 qr.) for equal seating capacity in a

single coach. This, in itself represents 16 per cent. reduction on the weight of the steel coach. There are also, however, important savings by the adoption of the articulated system, say 9 per cent. by the reduction in the number of bogies and 6 per cent. by the simplification of the intermediate couplings, a total of 15 per cent. Moreover, this "secondary" reduction in weight is accompanied by a saving in the cost of construction which helps to compensate for the cost of construction and using the light-metal alloys essential to the "primary" saving in body weight.

The total weight of the three new coaches is 75 metric tons (73 tons 16 cwt.), and the seating capacity is 98 for each end coach and 78 for the centre coach, a total of 274. The deadweight per seat is thus approximately 274 kg. (604 lb.), compared with 440 kg. (970 lb.) for the steel coach, a saving of 37½ per cent.



New York—Pittsfield express N.Y. N.H. & H.R. wrecked near Great Barrington (Mass.), 120 miles north of New York, due to the embankment being washed out by the floods described on page 790

## NEW REFRIGERATED FOUR-WHEEL WAGON

*In these vehicles the refrigerating equipment is housed in a separate compartment*



THE Société Altek, which for several years has manufactured eight-wheeled railway wagons with automatic refrigeration, has now constructed a four-wheeled wagon with a capacity of twelve tons. Of an entirely new design, the machinery of this wagon is quite separate from the storage part of the wagon and functions automatically for the production of cold independent of the outside temperature. Thanks to this installation, perishable goods can be maintained accurately at the desired temperature throughout the period of transportation, and for at least eight days without any supervision. The temperature can be regulated between  $-10^{\circ}$  and  $+25^{\circ}$  C.

The cooling unit in the Altek system is entirely independent, and power is supplied by a diesel engine. The wagon is divided into two parts, of which one, carefully insulated, is reserved for the goods, whilst the second contains the machinery. These two parts are separated by a partition and each has its own special entrance.

The section reserved for the machinery contains a diesel engine of 8 to 10 h.p., the refrigerating machinery, the dynamo and the control apparatus. The refrigerating apparatus is on the compressor system, using ammonia as the refrigerant. It permits the maintenance of a tempera-

ture as low as  $-10^{\circ}$  C. in the cold chamber. A thermostat set before departure disconnects the refrigerating mechanism at the moment when the temperature in the cold chamber reaches the desired degree. As the temperature rises, the thermostat restarts the operation of the refrigerator. During the whole journey the temperature of the cold chamber is shown continuously by the thermograph in the machinery department.

The circulation of the recooled air is assured by a fan, placed in the cold chamber below the cooler and operated by an electric motor. In order to obtain a uniform distribution of air throughout the wagon, a distributing trough is placed under the platform in the cold chamber. The air is sucked out by the fan from beneath the cooler, which is placed against the wall separating the cold chamber and the machinery section, and after having been cooled by contact with the tubes of the evaporator, the air is diffused anew by the distributing trough.

The evaporator is of small dimensions and occupies only  $1/30$  of the space kept for goods. The machinery compartment forms only  $1/10$  of the total length of the wagon. A regulating device permits the introduction of fresh air into the cold chamber, thus ensuring the humidity for the best preservation of the goods.

## SURFACING AND BORING MACHINES OF ENLARGED CAPACITY

TWO No. 3 patent Pearn-Richards surfacing and boring machines have recently been placed on the market, one having a traversing spindle and automatic facing head, and the other of standard type with automatic facing head only. It frequently happens that components have to be dealt with which, although of large size and perhaps awkward shape, have only small or medium sizes of faces and holes to be machined. Thus the advantages of being able to modify a medium size machine to take comparatively large components are considerable, and will appeal to very many users. In the standard non-traversing spindle machine the bed, which is 7 ft. wide overall, has extended wings with guideways, along which slide the outer supports to the saddle. The top revolving table is 3 ft. 2 in. square and is fitted with a Richards'

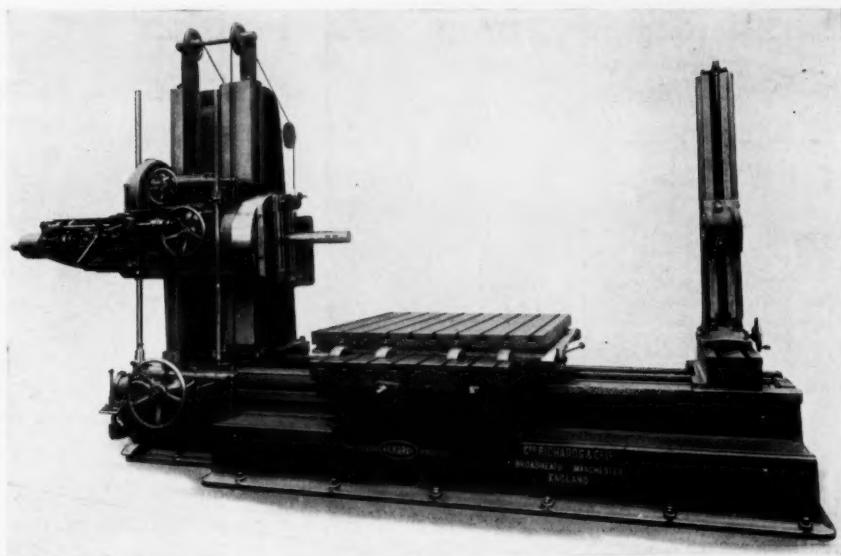
patent squaring lock, which ensures an extremely high degree of accuracy between all four sides of the work. This top table can be raised from the front of the main table, and the table, complete with a heavy load, can be moved round with the greatest ease.

Eight reversible feeds are given to the facing slide, ranging from 0.02 in. to 0.25 in. and a similar number to the tables longitudinally and transversely, and to the spindle frame vertically, the range in the latter case being from 0.01 in. to 0.125 in. Rapid power traverse is also provided to the spindle frame vertically and to the table longitudinally and transversely. The facing head has a total of 24 speeds ranging from 2.58 to 220 r.p.m.; reversing motion is provided for convenience in tapping operations. Rules and verniers are fitted to the longitudinal

transverse and vertical movements, enabling adjustments to 0.001 in. to be rapidly made.

#### The Traversing Spindle Machine

On the No. 3 machine with traversing spindle shown in the accompanying illustration the bed is 5 ft. 2 in. wide overall. The extended wings have guideways on which slide the outer supports to the saddle. The main table of this machine measures 7 ft. 3 in. x 4 ft., and has 6 ft. automatic cross traverse. The top or revolving table is 5 ft. square, also fitted with the Richards' patent squaring lock previously mentioned, and similarly with a lifting arrangement to facilitate moving the table round with a heavy job in position. The longitudinal traverse to the table along the bed is 6 ft., and the maximum distance between the facing slide and boring stay 10 ft. 9 in. The facing capacity in this machine is 42 in. diameter. Eight reversible feeds are provided to the facing slide ranging from 0.02 in. to 0.25 in., and eight feeds ranging from 0.01 in. to 0.125 in. are given to the table longitudinally

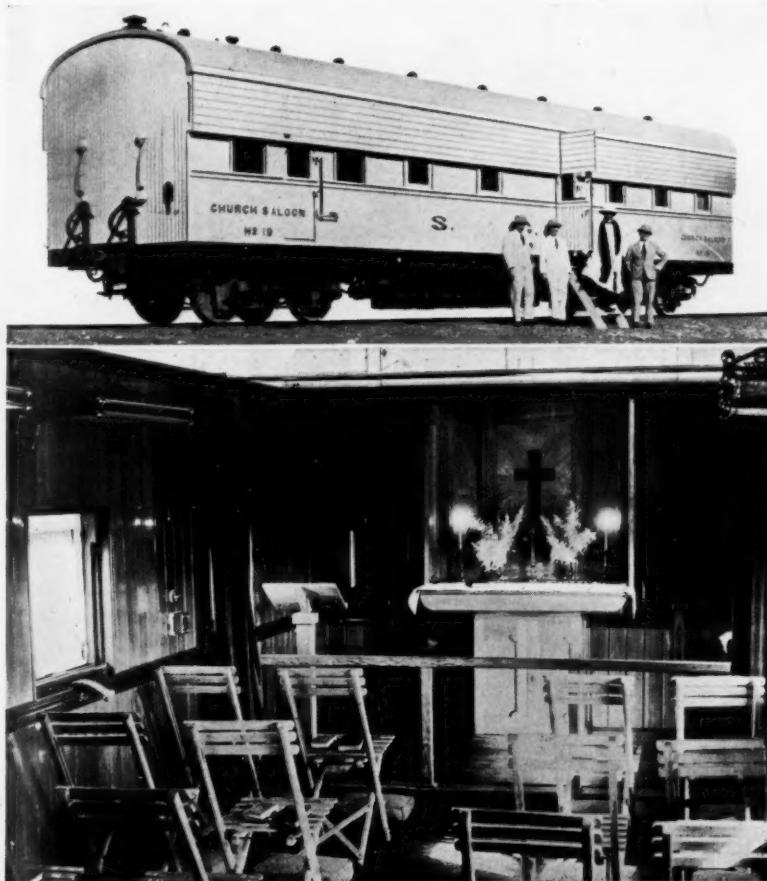


Pearn-Richards surfacing and boring machine with traversing spindle

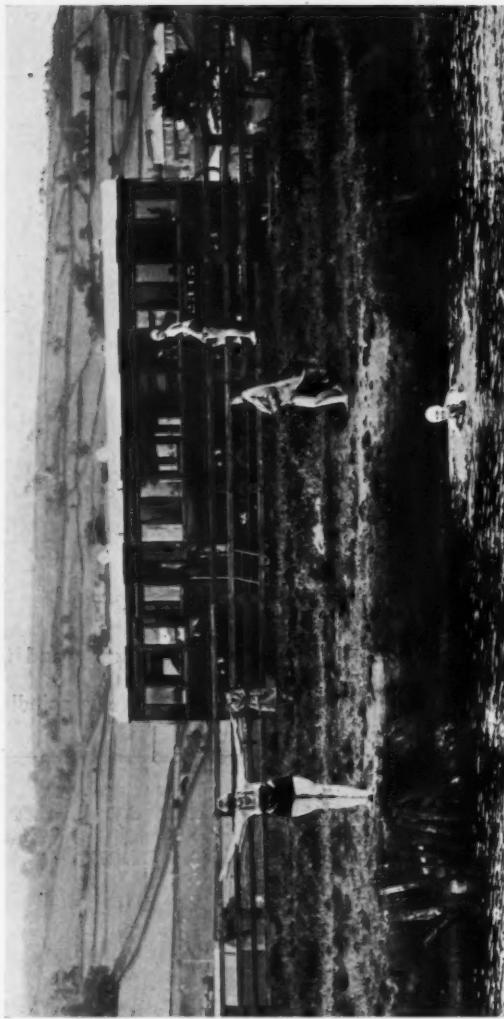
and transversely, to the spindle frame vertically and to the traversing spindle horizontally.

A total of 32 speeds is given to the traversing spindle, and twenty-four to the facing head.

#### Travelling Railway Church in the Sudan



*Among the many varied uses to which railway vehicles are put, that of providing a movable church is not often included. The Sudan Government Railways, however, maintain a Church Saloon that travels over the system so that British officials in outlying districts may be ministered to from time to time by the Padre that travels with it. The upper illustration reproduced alongside shows the exterior of the saloon church, and the Padre with members of the congregation outside. The lower view gives a good impression of the neatly arranged interior*



*The occupants of this L.N.E.R. camping coach enjoy the well-chosen position of their holiday home with a river at their door*



*A G.W.R. camp coach in a delightful West Country setting  
RAILWAY CAMPING HOLIDAYS (see editorial article on page 785)*



*A domestic scene in an L.M.S.R. 1936 caravan coach*



*Mealtime in an L.M.S.R. 1936 caravan coach*

## RAILWAY NEWS SECTION

### PERSONAL

We regret to note the recent death of Mr. C. W. Neele, who retired from the position of Electrical Engineer, Great Central Section, L.N.E.R., on March 31, 1924. Mr. Neele, who had been Electrical Engineer of the Great Central Railway since 1898, was born in 1866, and was the son of the late Mr. G. P. Neele, who for over 30 years

engineering matters by the London & North Eastern Railway.

Mr. John Lea, who, as announced in THE RAILWAY GAZETTE of April 17, is retiring on May 4 from the position of Divisional Superintendent at Swansea, G.W.R., began his railway career in the Traffic Department of the G.W.R. at Market Drayton. After obtaining experience at various

rule book, and this work gave him a thorough knowledge of the rule book that was to stand him in good stead when, in later years, he dealt with accident reports in these columns. In 1881 he was transferred to the Signal Department, and shortly afterwards, and before he was 21, was appointed Chief Indoor Assistant to the Signal Superintendent. In 1889, when only 27 years of age, he was appointed Signal



Elliott] [& Fry  
The late Mr. C. W. Neele,

Electrical Engineer, Great Central Railway and L.N.E.R. (G.C. Section), 1898-1924



Mr. John Lea,  
Divisional Superintendent, Swansea,  
G.W.R., 1924-36



The late Mr. H. Raynar Wilson,  
Recognised authority on accident records  
and signalling matters

was Superintendent of the Line, London & North Western Railway. Mr. C. W. Neele was educated at Merchant Taylors School in Charterhouse Square, London, and was apprenticed to the Anglo-American Brush Electric Light Corporation at their works in Lambeth. He was subsequently attached to the Telegraph and Electrical Department of the London & North Western Railway, holding various positions there until his appointment as Electrical Engineer, Great Central Railway, in August, 1898. At that time the G.C.R. trunk line to London was under construction, and Mr. Neele was responsible for the supervision of the erection and equipment of six power houses as well as the lighting and power all over the system, all block telegraphs, telephones and other electrical communications and their maintenance. Mr. Neele was a Member of the Institutions of Electrical Engineers and Railway Signal Engineers and of the Institute of Transport. After his retirement his services were retained for a period of three years as consultant on electrical

stations, he was transferred to the District Goods Manager's Office at Shrewsbury. In 1894 he was posted to the Chief Goods Manager's office at Paddington, and two years later was transferred to the Divisional Superintendent's Office at Paddington. In 1900 Mr. Lea was appointed Senior Relief Stationmaster for the London Division, holding this position until appointed Stationmaster at Slough in 1904. Seven years later he went to Exeter in a similar capacity, returning to the London Division to take up the position of Stationmaster at Reading in 1921. It was in 1924 that he was appointed Divisional Superintendent at Swansea, the position from which he now retires.

We regret to record the death, on April 19, after a short illness, of Mr. Henry Raynar Wilson, in his 74th year. Mr. Raynar Wilson, after leaving Derby School, joined the Midland Railway as an examining clerk in the staff office of the Superintendent of the Line a few months after the principal railways had adopted the first standard

Superintendent of the Lancashire & Yorkshire Railway, where he was able to initiate a number of economical signalling arrangements and to have the signalling over the line completely standardised. Nine years later he began to take an interest in automatic signalling, and after a visit to the United States he resigned from the L. & Y. to become, in 1901, the representative in Great Britain of the Hall Signal Company, in order, as he expressed it, to preach the gospel of track circuit and automatic signalling. The indifference of the operating superintendents of that day, and the ignorance of many of the signal engineers and, in particular, of the electrical engineers to the advantages to be gained by such installations, made his task a formidable one, and the North Eastern Railway was the only company to respond to his efforts when the Alne-Thirsk installation was authorised and completed in 1905. Mr. Raynar Wilson was instrumental in introducing into this country the use of long-burning oil lamps for signal lighting in 1903. He paid five visits to the United

April 24, 1936

States during the early years of the century, but his venture into commercial life was not successful and he had to give up his business. It is in connection with his writings that the name of Raynar Wilson will be best remembered. His first contributions were to our component, *The Railway*

RAILWAY GAZETTE, to which he had been a regular contributor ever since. His book, "The Safety of British Railways," was published in 1909, and in 1925 he compiled and published "Railway Accidents," dealing with their legislation and statistics from 1825 to 1924. His records of railway

when he contributed a Note on Lock-and-Block. His literary works are referred to in a leader on page 785.

The funeral took place at Golders Green crematorium on Wednesday last: those present included:—

Mr. F. Raynar Wilson, Lt.-Col. H. A. L. Mount, Chief Inspecting Officer of Railways



**Monsieur Poncet,**  
Appointed Chief Mechanical Engineer,  
Eastern Railways of France



**Mr. T. Follows,**  
Appointed District Locomotive Superintendent,  
Sheffield, L.M.S.R.



**Mr. L. Preston,**  
Appointed Assistant Signal and Telegraph Engineer,  
Southern Area, L.N.E.R.



**Mr. F. P. Oliver,**  
Secretary, Local Boards,  
Buenos Ayres Great Southern & Western Railways



**Mr. G. Saxon Jones,**  
Agent and Manager, London City Office,  
Canadian Pacific Railway, 1910-36



**Major W. Stormont,**  
Italian Travel Publicity Manager in London,  
1914-35

*Engineer*, starting in 1893, and in 1900 his first book, "Railway Signalling," was published by that journal. This book was later amplified and issued in two volumes as "Mechanical Railway Signalling" and "Power Railway Signalling" respectively. In 1905 he became associated with *The Engineer* as special contributor on railway matters other than locomotives, and in 1912 he began his association with THE

accidents were comprehensive, and he was justly regarded as an authority on the subject. When, in the early summer of 1917, the Foreign Office, for propaganda purposes, required a record of the railway communications built by the British Army in France, Mr. Raynar Wilson was commissioned to compile this document. His connection with the International Railway Congress Association began in 1895,

Ministry of Transport; Major R. F. Morkill, London Passenger Transport Board; Mr. A. F. Bound, Signal Engineer, L.M.S.R.; Mr. H. F. D. Page, Signal Engineer, G.W.R.; Mr. W. Challis, Assistant Signal Engineer, S.R.; Mr. L. Pendred, Editor, *The Engineer*; Mr. J. A. Kay, Editor, THE RAILWAY GAZETTE; Mr. W. A. Willox, Chief Assistant Editor, THE RAILWAY GAZETTE; Mr. F. S. Bond, Assistant Editor, THE RAILWAY GAZETTE; Mr. J. Proud, Westinghouse Brake & Signal Co. Ltd.; Mr. R. S. Griffiths, Westinghouse Brake & Signal Co. Ltd.; Mr. W. S. Roberts, The Railway Signal Co. Ltd.

Monsieur Poncet, who, as announced in THE RAILWAY GAZETTE of April 3, has been appointed Chief Mechanical Engineer of the Eastern Railways of France, was originally a marine engineer. He joined the Eastern Railways on February 1, 1920, as an Assistant Locomotive Engineer, first at Châlons-sur-Marne and later at Vesoul. On April 1, 1923, he was appointed as an Assistant in the Locomotive Superintendent's office, and a year later became Chief Assistant. In April, 1928, M. Poncet was promoted to be Senior Assistant in the office of the Chief Mechanical Engineer, and on January 1, 1930, became Assistant to the C.M.E. It was on October 1, 1933, that he was promoted to be Assistant Chief Mechanical Engineer, the position he now relinquishes to become Chief Mechanical Engineer.

Mr. T. Follows, who, as announced in THE RAILWAY GAZETTE of April 10, has been appointed District Locomotive Superintendent at Sheffield, L.M.S.R., will take up his new duties in July. He joined the former Midland Railway as an apprentice at Toton, and was transferred to Derby in 1912. There he remained for seven years before proceeding to Peterborough, and in 1922 was transferred to Birmingham. In 1926 he was appointed to the personal staff of Mr. J. E. Anderson, Superintendent of Motive Power, Derby, L.M.S.R. Mr. Follows was promoted to be District Locomotive Superintendent at Swansea in 1933, the position he will shortly vacate to go to Sheffield. During his tenure of office at Swansea the Abergavenny area was added to that district in April, and the Shrewsbury area in October, 1934.

Mr. W. H. Ensor, who, as announced in our issue of April 10, has been appointed District Locomotive Superintendent, Swansea, L.M.S.R., served his apprenticeship and gained footplate experience in the workshops and at the running shed of the former Midland Railway at Derby. His first graded position was as draughtsman in the Locomotive Drawing Office at Derby from 1915 to 1921. In the latter year he was transferred to the Motive Power Section as Assistant District Locomotive Superintendent at Leeds, where he remained until 1924, when he was transferred to Normanton, in a similar capacity, on the amalgamation of the Midland Division Motive Power depot and Lancashire and Yorkshire Motive Power depot. In March, 1927, Mr. Ensor was promoted to be District Locomotive Superintendent at Chester, where he has remained until his present transfer to Swansea in a similar position. He is a Member of the Institution of Locomotive Engineers.

Mr. L. Preston, who, as announced in THE RAILWAY GAZETTE of April 10, has been appointed to succeed Mr. Carslake as Assistant Signal and Telegraph Engineer, Southern Area,

L.N.E.R., entered the service of the former Great Eastern Railway in 1906 and was trained in telegraphy, telephony, power and signal engineering. He was appointed to the technical staff of the Electrical Engineer's Department in 1912, and afterwards was transferred to the Signal Department as Electrical Assistant; subsequently he was appointed Indoor Assistant to the Telegraph Superintendent. On the amalgamation of the Signal and Telegraph Departments of the Southern Area, L.N.E.R., in 1929, Mr. Preston became Chief Technical Assistant to the Signal and Telegraph Engineer, the position from which he is now promoted to be Assistant Signal and Telegraph Engineer.

Mr. Frank P. Oliver, Secretary, Local Board, Buenos Ayres Western Railway, has also been appointed Secretary, Local Board, Buenos Ayres Great Southern Railway, under the scheme of unified working between these two companies, and Mr. Francis E. A. Rowell has been appointed Assistant Secretary of the local boards of both railways.

Mr. Oliver was born in Kent, and commenced his career with the Central Argentine Railway, serving successively in the Traffic Department, the General Manager's office and on the staff of the Local Committee. He was subsequently transferred to the B.A. Western Railway, where for some years he occupied the post of Assistant Secretary to the Local Board. In July, 1931, he was appointed Secretary to the Local Board.

Mr. Rowell, who was born in Newcastle-on-Tyne, entered the service of the B.A.G.S. Railway in 1910. He was appointed to the staff of the Local Board, where he has ever since remained, his abilities having gained him rapid promotion.

Mr. G. Saxon Jones, who, as announced in our issue of April 10, has just retired from the position of London City Agent and Manager, Canadian Pacific Railway, joined that railway as an office boy in 1886 at the C.P.R. London office, then in Cannon Street. He soon rose to be messenger and then assistant, and, when London was made the European headquarters office instead of Liverpool, Mr. Saxon Jones was engaged in getting freight consignments for the C.P.R. in opposition to the old Grand Trunk route. Later he was partly responsible for the Furness Line steamers calling at St. John, then the new Canadian Pacific terminal. This event gave rise to the origin of the "All Red Route" slogan, though it subsequently applied to the all-C.P.R. steamer-and-rail route, when the railway began running its own ships. The Atlantic fleet was acquired in 1903, and it was then that Mr. Saxon Jones became Freight Agent. In 1910 he was promoted to take charge of the office in the City of London as Manager and Agent, so that he now retires with 26 years as Agent and Manager and 50 years' service with the company to his credit.

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Major W. Stormont, who for the past 21 years has been in charge of Italian travel publicity in London, has left the service of that country. After having been for a number of years attached to the Continental side—including publicity—of the General Manager's office of the South Eastern & Chatham Railway, Major Stormont was appointed, early in 1914, to open and manage the London office of the Italian State Railways and Italian Steamship lines. He served in France and in the Eastern Mediterranean during the war. In 1921 the Italian Government formed the Italian State Tourist Department (E.N.I.T.), which absorbed the State Railway travel offices abroad; but in 1927 the Italian Tourist Company (C.I.T.) took over the tourist offices from the E.N.I.T. and Major Stormont continued to control official publicity as Delegate of E.N.I.T. for Great Britain and Ireland, and at the same time managed the London office of the C.I.T. In 1931 the propaganda was entirely divorced from the tourist business and the C.I.T. moved to other premises. Major Stormont then devoted himself solely to the propaganda side of the work. Many publications in English—such as "Winter in Italy" and "Summer in Italy"—also articles and letters in the press, written by him, were frequently published. His earlier propaganda included the organisation of lantern lectures upon Italy's part in the European war, and raised considerable funds for the Italian Red Cross. Major Stormont has now parted with the Italian authorities, both here and in Italy, on the most friendly terms, and a grant was made him in recognition of the striking success with which he carried out his responsible and varied duties. The order of St. Maurice and St. Lazarus was conferred on Major Stormont for active service during the Great War. In 1929 he received the order of Commander of the Crown of Italy. For many years he was Chief Consul for Great Britain of the Italian Touring Club. He is a F.R.G.S. On page 782 is an editorial note on the Italian Tourist Publicity Office in London.

Mr. A. M. Bell, O.B.E., sometime Carriage and Wagon Superintendent of the Great Indian Peninsula Railway, whose death we announced in our issue of February 14, left estate valued at £29,385 (£29,176 net).

Mr. Brian F. Lucy, one of the technical staff of Leyland Motors Limited, is shortly sailing for New Zealand, to collaborate with the New Zealand Government Railways and the New South Wales Railways in the building of Leyland-engined railcars in those Dominions. Mr. Lucy has been engaged in the development of Leyland railcars and railcar tractor units since their inception, and has been responsible, in conjunction with Dr. Haworth,

for the development of the control system, which allows Leyland cars to be coupled in any order and direction and driven from any control point.

We regret to record the death, on April 19, of Mr. R. Williamson, Accountant of the Cambrian Railway until its absorption by the G.W.R., when he retired.

Mr. P. Nunn, formerly Divisional Superintendent, Western Division, Southern Railway, was the recipient at Exeter, on April 20, of an electric radio-gramophone subscribed for by the stationmasters of that division.

The King has been pleased to continue his patronage of the Railway Benevolent Institution, and Queen Mary has also signified her assent to the continuance of her patronage. The Institution has, therefore, been thus honoured by the last four reigning monarchs.

At the annual general meeting of the Federation of British Industries held on April 22, Lord Hirst of Witton was elected President for the coming year. The Rt. Hon. Lord Aberconway, C.B.E., of Thomas Firth & John Brown Limited, and Mr. A. H. Kilner, of Courtaulds Limited, were elected additional Vice-Presidents of the Federation.

#### ARGENTINE RAILWAY STAFF CHANGES

Mr. W. J. Lambert, Chief of the Expenditure Audit Division, Chief Accountant's Department, Central Argentine Railway, retired on pension at the end of February after 25 years' service with that company, and has been succeeded by Mr. H. Francis, promoted from Chief Book-keeper.

Mr. P. Goddard, Assistant Traffic Manager, Central Argentine Railway, has returned from European leave.

#### INDIAN RAILWAY STAFF CHANGES

Mr. F. G. S. Martin, Controller of Stores, E.I.R., has been granted 6½ months' leave as from March 27.

Mr. A. C. Turner, Controller of Stores, M. & S.M.R., has been granted eight months' leave as from March 13. Mr. H. L. W. Stevens has been appointed to act in his place.

Mr. W. O. Chalk, Superintendent, Mechanical Workshops, N.W.R., has been granted 8½ months' leave preparatory to retirement as from March 24 and is succeeded by Mr. H. M. R. Morse.

Mr. L. V. Pont has been appointed to officiate as Deputy Chief Engineer, Signals, N.W.R.

Mr. C. V. S. Rao has been appointed to officiate as Deputy Chief Accounts Officer, Burma Railways, from March 5.

Mr. A. H. Thackwell officiating Deputy Chief Mechanical Engineer, E.I.R., has been granted eight months' leave, as from March 13.

Mr. E. L. Manley, Chief Engineer, E.B.R., has been granted six months' leave as from April 15.

Mr. E. Ingoldby, Director of Mechanical Engineering, Railway Board, has been granted 6½ months' leave, as from March 19.

Dr. W. R. Taylor, Chief Medical Officer, Burma Railways, has been granted 24 months' leave preparatory to retirement, as from March 18.

Mr. T. H. Morris, Controller of Stores, B.-N.R. has been granted leave and Mr. R. M. Innes has been appointed to act for him during his absence, as from March 9.

Mr. R. de K. Maynard, acting Chief Operating Superintendent, M. & S.M.R., has been granted eight months' leave as from March 13. Mr. M. A. Walker has been appointed to act in his place.

**L.N.E.R. (N.E. AREA) AMBULANCE COMPETITION.**—The Hull (Dairycoates) team won the L.N.E.R. (N.E. Area) Wharton Shield ambulance competition at York on April 4, with 220 points out of a possible 300. Newcastle (Central station) was second with 187 points, and Middlesbrough (Saltburn station) third with 154. Other teams competing, and their scores, were: Leeds (Police), 149; Darlington (District Engineers), 147; and York (Police), 140. The judge was Dr. K. H. Beverley, and the awards were presented by Mr. Thos. Hornsby, Divisional General Manager, York. Among the L.N.E.R. officers present were Messrs. W. T. Athey, W. A. Fiddian, J. S. Harper, C. M. Jenkin Jones, T. H. Royle, G. Sowerby, and J. Taylor.

**L.N.E.R. AMBULANCE COMPETITION.**—The L.N.E.R. group ambulance competition will be held on Wednesday, April 29, in the Board Room at Marylebone station, beginning at 1.30 p.m. The teams taking part are those having won top place in the competitions held in connection with each centre associated with one of the constituent railway companies of the L.N.E.R. They are: North Eastern Centre, Hull (Dairycoates); Great Northern Centre, Peterborough (New England); Great Central Centre, Tuxford; and Great Eastern Centre, Parkstone and Harwich. The judge will be Major Orton, of Coventry, and the two teams securing first and second places will represent the L.N.E.R. in the Inter-Railway Competition and England v. Scotland Competition, to be held on May 27 and June 12, respectively.

**G.W.R. AMBULANCE PRESENTATION AT STOURBRIDGE.**—Mr. Cyril Lloyd, a director of the Great Western Railway Company, was the guest of honour at the annual divisional presentation of ambulance awards at Stourbridge Town Hall on April 3. The function, which took the form of a smoking concert, was presided over by Mr. F. K. Pelley, District Goods Manager, Birmingham, supported by Mr. W. E. Hart, Divisional Superintendent; Mr. H. S. B. Whitley, Divisional Engineer; and Major Woodward, of Arley, and was

attended by a large and enthusiastic company. In presenting a large number of gold efficiency awards granted by the company for 35, 30, 25, 20, and 15 years' ambulance service, Mr. Lloyd spoke very highly of the men who gave so much of their time to such work, and of the value of the first aid movement. Major Woodward distributed examination awards to members of the Stourbridge Junction class; those to the Langley Green and Round Oak classes were presented by Mr. Hart and Mr. Whitley, respectively. The Bantock and Felix Fellows cups for individual competition work were also presented by Mr. Lloyd, and competition prizes by Major Woodward. A varied and interesting musical programme was contributed by talented artistes, and was much appreciated.

**AMBULANCE PRESENTATION AT SWINDON.**—Over 500 members and supporters of the Great Western Railway Ambulance Centre met at the Baths Hall, Swindon, on April 3 for the annual concert and presentation of awards to the company's ambulance classes, when Mr. J. Auld, Principal Assistant to the Chief Mechanical Engineer, presided, and was supported by local officers and medical men. Reporting on the year's work of the Swindon classes, Mr. Auld said that 366 men had successfully passed their examination, a record number for Swindon. Mr. W. W. Wakefield, M.P. for Swindon, thanked the division for the fine work it was doing, and the self-sacrifice and time devoted to it. Dr. T. P. Berry, of the Swindon Medical Fund Hospital, presented a large number of examination awards and gold efficiency medals, and made a strong appeal for an increase in recruits and for the keeping up of the standard of efficiency. The association had, he said, great traditions, and it was for them to perpetuate and keep them alive. In addition to awards, Dr. Berry also presented the Local Cup, Cecil Cup, Churchward Memorial Trophy, and prizes awarded by the directors in the divisional competitions. An excellent concert programme was provided by the Gloucestershire B.B.C. Party and other artistes.

**STEEL PUBLICITY BY CINEMA.**—The United Steel Companies Limited has released for use by universities, colleges, technical societies, and others a 16-mm. silent film dealing with the manufacture and inspection of Diamet steels. The name is formed from the initial letters of "disc inspected and metallurgically examined and tested," and the code of inspection includes an entirely new system, demonstrated in the film for measuring the non-metallic inclusions in steel. A high-frequency electric steel-melting furnace is also seen at work, and a concluding section shows the forging of Diamet inspected steels into aircraft crankshafts. Applications for the film should be addressed to the Publicity Department, the United Steel Companies Limited, 17, Westbourne Road, Sheffield, 10.

## Transport Developments in 1935

Mr. R. Bell, Assistant General Manager, L.N.E.R., presented to the Institute of Transport last Tuesday his customary annual paper. Entitled "Transport Developments in 1935," it dealt in particular with new facilities of speed, convenience to the traveller, and swifter handling of traffic either introduced or projected by the British railways in the past year.

Progress in means of getting about the world was, he said, an infallible spur to public enthusiasm, as had been demonstrated by the enduring interest shown in the *Queen Mary* and the Silver Jubilee streamlined train of the L.N.E.R. The capacities of the "Silver Link" class *Pacifc*s used on this service were such that they could cover the 268 miles from London to Newcastle in less than the four hours allowed by the strictly enforced schedule, as was demonstrated on the occasions when the train arrived early in spite of time lost by permanent way restrictions. The Silver Jubilee had attracted patronage to such an extent that it would seem desirable to provide at least 200 seats in place of the present 158 when a new train was built. The numbers using the train and the modest supplement charged made it a commercial success by outweighing the expenses of the ample staff carried and the special gang of cleaners who tended the locomotives and coaches. Receipts per train-mile were 16s. 2d. (including restaurant car takings), against working expenses (excluding general charges, interest, and depreciation) of 4s. 2d. The net receipt of 12s. proved that speed was not an expensive luxury, but a profit earner, when offered to the public under conditions which gave it a strong appeal. For the L.N.E.R. passenger service as a whole the average receipt was about 5s. per train-mile, of which 2s. 6d. went in expenses.

The diesel engine, although capable of high speeds, suffered in comparison with the steam locomotive because it lost much of its tractive power as its speed increased. The weight to be hauled had therefore to be kept low, so that on the competing routes in America between Chicago and the Twin Cities, the Burlington Zephyrs, with their full load of 86 passengers, earned slightly below 5s. a mile, compared with 14s. 8d. on the steam-hauled streamlined Hiawatha of the Chicago, Milwaukee, St. Paul, and Pacific. Expenses per train-mile of the Hiawatha were 4s. 9d., leaving net receipts, at 9s. 11d., considerably less than those of the Silver Jubilee. Its six coaches weighed 360 tons compared with the 220 tons of the seven Silver Jubilee vehicles, and seated 265 passengers, or 107 more than the British express. The oil-fired Atlantic locomotives of the Hiawatha were 70 tons heavier than the "Silver Link" *Pacifc*s.

Other railway accelerations in

America, coupled with such inducements to travel as air-conditioning and cheap fares (which had reduced the revenue per passenger-mile to less than 65 per cent. of the 1923 figure), had attracted enough new business to effect an improvement of 2½ per cent. in the total passenger revenue of 1935 compared with 1934. To the factors of speed, comfort and price in the campaign of the railways for new traffic had been added the argument of safety, supported by the fact that only one passenger was killed in a railway accident in the United States last year.

In Great Britain, the latitude allowed by the procedure of the Railway Rates Tribunal had enabled the companies to adjust their charges and still retain a fair margin of profit. Passenger receipts of the four groups had never fallen below 70 per cent. of the 1923 figures, and in 1935 had increased by £1,437,000, or nearly 3 per cent. Here, too, new attractions had been offered to travellers, and even those which were unremunerative themselves, such as wireless reception and Dictaphone service on certain L.N.E.R. expresses, had been of publicity value. One innovation, however, the travelling cinema, had been sufficiently popular to justify the introduction of a second car providing this service, and the new vehicle was now making the return trip daily between Leeds and Edinburgh, attracting an average audience of 75 on the round journey. The pioneer L.N.E.R. cinema car, which had been in service since May, 1935, was patronised by over 100 people daily on its run between London and Leeds.

Although air transport within Great Britain had so far been too spasmodic seriously to menace railway traffics, the number of passengers conveyed to and from the Continent had more than trebled in five years. Elsewhere, the route mileage of airlines had increased by nearly 80 per cent. in six years. This progress had been artificially simulated by subsidies, particularly in the U.S.A., where the taxpayer contributed about \$100 a year for every passenger carried by air, and the American Post Office had found \$10½ million for domestic and foreign air mail services. Yet last year sixteen railroads in the U.S.A., operating 29,000 miles of line, went into bankruptcy, and altogether 89 companies were working under the jurisdiction of the courts.

As an example of an industry dependent upon transport which was still flourishing, Mr. Bell mentioned the record established by Hull last year in landing 288,000 tons of fish. The trawler owners now wanted more accommodation at Hull, and at Grimsby (where a new fish dock had been provided as recently as 1934) it was necessary to extend the fish market. Last year the L.N.E.R. earned a profit of

barely £115,000 on its £26,000,000 invested in docks, but fortunately the Government had been willing to lend its credit so that money for extensions could be raised at a low rate of interest.

This helping hand extended to benefit the fishing industry had been the precedent for the guaranteed loans for improvements in London suburban transport and railway developments generally. The L.N.E.R. electrification between Sheffield and Manchester to be carried out with the help of this Government assistance would have a single track mileage (including sidings) of 293, and a route mileage, with four or five short branches, of 74½. For the first time in this country, main-line passenger and freight haulage would be performed by electric locomotives, of which 121 would do the work of the 196 steam engines at present in use. An express goods train would run from Sheffield to Ardwick (Manchester) in 30 min. less than the present timing, while a 1,000-ton mineral train would save 80 min. on the run to Guide Bridge, and its average of 27 m.p.h. would be double the present speed. The headway of trains through the Woodhead tunnel would be reduced from 15 min. to 5 or 7½ min., and the improved atmospheric conditions in the tunnel would make the life of rails about half as long again. Overhead d.c. supply at 1,500 V. would be used, and the net cost, between £1½ million and £2 million, would not be a vast sum for what might mark the opening of a new epoch for railway operation in Great Britain.

Mr. Bell concluded by reviewing the road-rail position in Europe and America, and said that the outlook for railway freight traffic was brightening on both sides of the Atlantic. It was obvious that leaders of industry in this country were recovering confidence, and more was to be expected from the spontaneous development of trade through their own enterprise than from State-aided works in the so-called "special areas."

**G.W.R. FLOWER HARVEST POSTER.**—The Great Western Railway has recently issued a new coloured poster to advertise the flower harvest season in Cornwall and the Scilly Isles. Mr. Pat Keely, the artist, has profited by the opportunity afforded him of presenting the Cornish Riviera under a less tropical aspect than usual to produce a very attractive and economically sketched landscape in blue, green and yellow. Three figures knee-deep in the yellow harvest of the fields, and a yellow-laden cart jogging along a luxuriantly hedged road in the left foreground, add just the touch of life necessary to complete the appeal of Mr. Keely's wide perspective of land, sea, and sky. A greater density of population, however, is to be expected in the far West during the flower harvest now that this new G.W.R. poster is being publicly displayed.

April 24, 1936

## Centenary of the Festiniog Railway

Monday last marked the centenary of the opening of the Festiniog Railway, probably the most famous narrow-gauge line in the world. This railway owed its origin to Mr. James Spooner, a civil engineer, who advocated building a tramroad to facilitate conveying slates from the quarries in the mountains of Merioneth to a port of shipment at Portmadoc. A narrow gauge (1 ft. 11½ in.) was adopted because of the sharp curves necessitated by the mountainous terrain.

Through the instrumentality of Mr. Spooner, a Bill was promoted in Parliament and received the Royal Assent on May 23, 1832, as 2 & 3 William IV, cap. 48. This incorporated the Festiniog Railway Company, with powers to construct a railway or tramroad from Portmadoc to various slate quarries (Rhiwbryfder and Dwyfws) near Festiniog, in the County of Merioneth, and to raise a capital of £24,185 and loans of £10,000.

Work was begun on February 24, 1833, and the line opened on April 20, 1836—exactly one hundred years ago. It was built as a single line with 16-lb. rails on stone sleepers. Trains of loaded slate wagons descended by gravity, and the empty trucks, together with coal and sundries, were hauled back by horses. The difference in levels between Blaenau and the coast at Portmadoc was 700 ft., and to overcome this many bold engineering works

had to be carried out. In some places the line runs on a shelf cut in the hill-side hundreds of feet above the valley, and in others it crosses deep ravines on narrow stone embankments, certain of them 600 ft. high. From the eastern end of the Traeth Mawr embankment the railway rises continuously and steeply, with a maximum gradient of 1 in 68-69, although the steepest gradient of any great length is 1 in 79-92, which extends for about 2½ miles. Throughout almost its entire length the railway is a series of curves varying in radius from 8 chains to as little as 1½ chains; although some of the latter are 200 ft. in length.

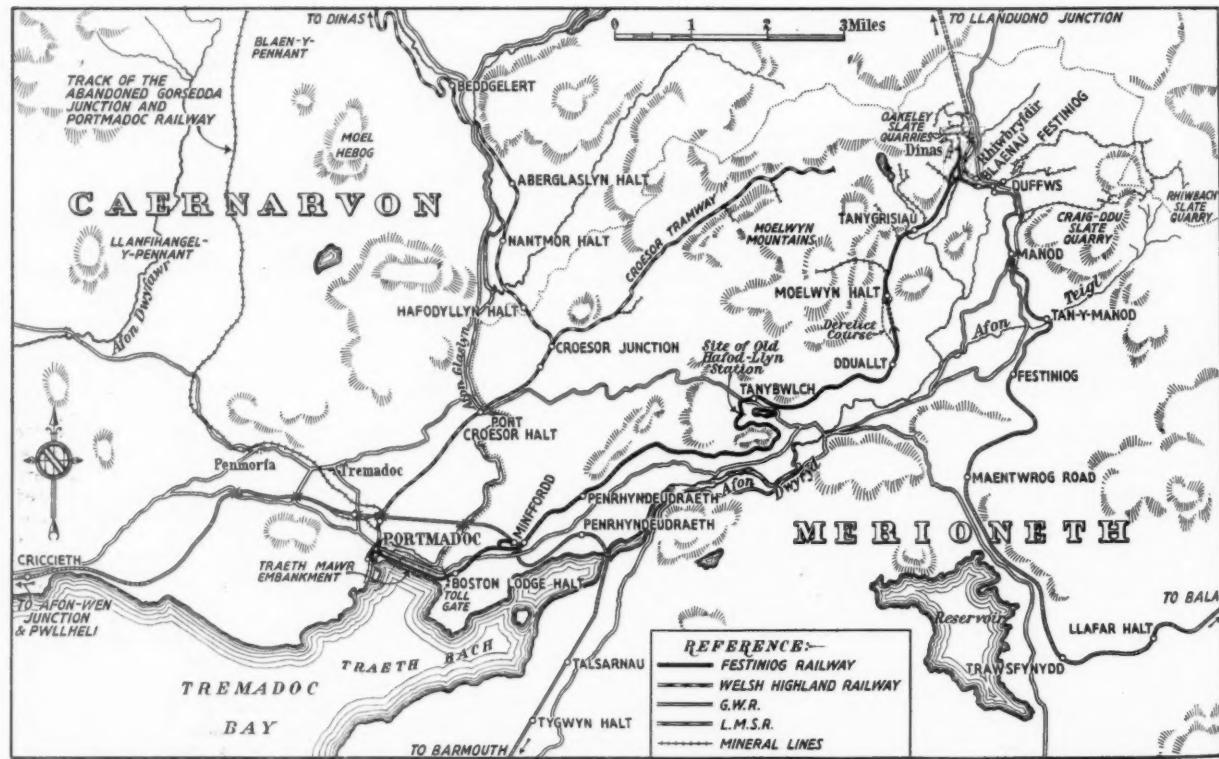
The construction of the line attracted considerable local interest, and the opening was the occasion of some ceremony, as is shown by the following extract from the *Carnarvon and Denbigh Herald* of April 23, 1836:—

On Wednesday, the 20th inst., the Festiniog Railway was opened, and the arrangements in honour of the day, under the superintendence of James Spooner, Esq., the engineer, gave general satisfaction. A train of wagons loaded with slates from Mr. Holland's quarries (the only proprietor at present making use of the road) was brought down upon it to Port Madoc, where its arrival was loudly cheered by the assembled spectators. The train was accompanied by several carriages provided for the accommodation of the ladies and gentlemen desirous of witnessing the interesting event; the effect of the scene was heightened by the attendance of a well-selected band from Carnarvon, and the display of flags in honour of the success of the undertaking. Volleys of rock-cannon fired at intervals awakened the

echoes of Moelwyred and the surrounding hills, and the discharge from the fort at Morfa Lodge, the residence of James Spooner, Esq., announced the safe arrival of the whole train at the port.

When the railway was opened it had only one tunnel, 60 yd. long 8 ft. wide and 9 ft. 6 in. high, driven through slate to the east of where Tanybwlich station now is. Two miles further on there is now another and much longer tunnel driven some 730 yd. through syenite. This was built in 1840 to avoid a cable-operated incline over one of the spurs of the Moelwyn Mountain. In the early fifties, the line was relaid with 30-lb. single-headed rails of T section on transverse wooden sleepers and these did duty up to the locomotive period, when 48½-lb. bull-head rails were substituted.

Although Mr. James Spooner is understood to have given consideration in early years to the subject of steam traction on this pioneer narrow-gauge line, he met with little encouragement as to the practicability of building suitable locomotives, and it was left to his son, Mr. C. E. Spooner, who succeeded him as Engineer of the line, to carry this into effect. In 1863, he persuaded his directors that increasing traffic demanded mechanical traction and accordingly two locomotives were ordered from George England & Co. of the Hatcham Ironworks. These engines, named *The Princess* and *The Prince*, were 0-4-0 side tanks with a separate tender for the coal space and tool box. When they inaugurated locomotive traction on the Festiniog Railway in December, 1863, they pro-



Sketch map of the Festiniog Railway and neighbouring lines

vided for the first time steam haulage over a public railway of so narrow a gauge.

Doubtless passengers had been carried unofficially from early years on this line as on many other mineral railways, and in 1864 they were catered for on steam-hauled trains as an experiment, travellers riding at their own risk, and making no direct payment.

As this was successful, application was made to the Board of Trade for the line to be passed for regular passenger-carrying. The inspection was carried out by Capt. H. W. Tyler, and the official passenger service was begun on January 6, 1865. Increasing traffic made it necessary to provide additional accommodation, and, as the alternative to doubling the line, Mr. C. E. Spooner

decided to introduce Robert Fairlie's patent double-bogie locomotive. The first for the Festiniog Railway, the famous *Little Wonder*, was built by George England & Company and placed in service in September, 1869. Almost world-wide interest was taken in its performance, and from that time to the present day Fairlie-type engines have constituted a feature of this railway.

## RAILWAY AND OTHER REPORTS

**San Paulo (Brazilian) Railway.**—The board recommends a dividend on the ordinary stock of 2½ per cent., free of tax, for the year 1935, the same as for the previous year.

**Puerto Cabello & Valencia Railway.**—The directors of this company, which is controlled by the Bolívar Railway Company, have decided to pay, on May 1 next, the full 2½ per cent. interest on the coupon due January 1, 1935, on the 5 per cent. first charge mortgage bonds.

**Sorocabana Railway.**—The sterling funds available for distribution on account of the coupon due April 1, 1936, on the £1,489,040 first debentures outstanding amounted to £27,120, and this sum has enabled 1½ per cent. to be paid on these debentures, leaving £1,062 to be carried forward to the credit of the first debenture holders.

**International Railways of Central America.**—Gross income amounted in 1935 to \$1,917,756, compared with \$1,655,409 in 1934, and the company covered its fixed charges 1·3 times. Net income after depreciation and amortisation of discount on funded debt, but before sinking fund operations, was \$441,836 in 1935, as compared with \$103,335 in the previous year. Consolidated profit and loss account stood at \$8,012,403 on December 31, 1935, as compared with \$7,933,357 at the end of the previous year. Political conditions have been stable during the past year in the countries of Guatemala and El Salvador which are served by the company, but the economic effects of the depression are still seriously felt.

**Zafra & Huelva Railway Company (of Spain).**—Gross traffic receipts for the year 1935 amounted to ptas. 3,368,865, or ptas. 92,996 less than in 1934. Working expenses fell by ptas. 226,928 to ptas. 3,693,046, and the operating ratio improved from 113·23 per cent. to 109·62 per cent. Sundry receipts other than traffic were also down by ptas. 53,155 to ptas. 25,079. Administration expenses were again substantially reduced. No fees have been paid to the members of the London Committee since April 1, 1935. The deficit for the year amounted to ptas. 415,870, which sum, added to ptas. 1,779,723, brought forward at the debit of profit and loss, makes a total loss of ptas. 2,195,592 during the last five years. It is again impossible, therefore, to make any distribution to the first mortgage bondholders in

respect of interest, or to redeem any bonds. The reduction in revenues was largely caused by road competition. The company has not, since 1931, received any part of the compensation payable under the 1924 Statute.

**City of Oxford Motor Services Limited.**—The accounts of this company, which is controlled jointly by the Great Western Railway Company and the British Electric Traction Co. Ltd., show that the profit for the year 1935 amounted to £29,054. Adding £5,600 brought forward makes a total of £34,654, of which £10,000 is transferred to reserve, £4,810 is applied to preference dividend, and £14,175 to a dividend of 10 per cent. (the same) on the ordinary shares, leaving £5,669 to be carried forward. The authorised capital was increased during the year by 50,000 additional ordinary shares of £1 each.

**Albion Motors Limited.**—The accounts for 1935 show an expansion in net profits from £44,681 for 1934 to £82,058, after providing £11,000 for income tax. A transfer of £30,000 (against nil) has been made to reserve fund, making it £235,000, and it is proposed to pay on April 29 a dividend of 10 per cent. on the ordinary shares (against 5 per cent.). The balance forward is raised from £26,452 to £29,028. In view of the company's increased capital requirements due to expansion of business, the board has decided to issue 82,900 ordinary shares. These are being offered in the first instance to the ordinary shareholders in proportion of one share to every five of their holding of ordinary shares, at a premium of 20s. a share.

**Northern General Transport Co. Ltd.**—Total revenue for the year 1935 amounted to £602,328 and the expenses to £443,533, leaving a working surplus of £158,795, as against £160,778 for the year 1934. Adding £37,716 brought forward gives a total of £196,511. From this is deducted the provision of £60,000 (as against £63,000) for renewals. From the balance of £136,511 the directors recommend the allocation of £15,000 to reserve, of £3,000 to employees' assistance fund, of £19,500 for dividend of 6½ per cent. for the year on the preference shares, and of £55,405 for dividend of 10 per cent. for the year on the ordinary shares, leaving £43,606 to be carried forward. The company is controlled jointly by the L.N.E.R. and the British Electric Traction Co. Ltd.

Speaking at the annual meeting on April 8, Mr. E. R. Soames (who presided) said that since the close of the year the company had acquired a controlling interest in the Tyneside Tramways and Tramroads Company, a statutory undertaking, which now operated neither tramways nor tramroads, but a service of motor omnibuses between Newcastle and North Shields.

**Stewarts and Lloyds Limited.**—Profits for the year 1935, after providing for debenture interest and taxation, but before providing for depreciation, amount (subject to final audit) to £800,534, compared with £1,004,982 for 1934. It is again proposed to pay on the deferred shares a dividend of 1s. a share, or 5 per cent. for the year, and on the liaison deferred shares a dividend at the same rate relatively as the deferred shares.

**British Timken Limited.**—The accounts for the year 1935 show a net profit of £61,122, comparing with £49,569 for 1934. Transfers are made of £13,500 to taxation reserve and £25,000 to general reserve, and it is proposed to pay a dividend of 10 per cent. on the capital of £250,000 in £1 shares. This dividend is the first to be announced since a block of 125,000 shares became available to the public last June. The balance forward is raised from £17,405 to £20,652. For 1934 a dividend of 8 per cent. was paid.

**Birmingham & Midland Motor Omnibus Co. Ltd.**—For the year 1935 this company, which is jointly controlled by the L.M.S. and G.W. Railway Companies and by the British Electric Traction Co. Ltd., secured net traffic receipts, together with interest and dividends and other revenues, amounting to £612,777, against £577,015. After deducting administration and general expenses, &c., and adding £60,258 brought forward, there is a balance of £323,357 (against £300,474), out of which it is proposed to apply £82,834 (against £72,216) to reserve, £10,000 to employees' assistance fund, £8,000 to dividend of 8 per cent. for the year on the cumulative preference shares, £100,000 to dividend of 10 per cent. for the year and £50,000 to a 5 per cent. bonus, on the ordinary shares, carrying forward £72,523. The dividend and bonus and the allocations to assistance fund are the same as for the previous year. The company has acquired control of the omnibus businesses of the Leamington & Warwick Transport Co. Ltd. and Stratford-upon-Avon Blue Motors Limited.

## QUESTIONS IN PARLIAMENT

### Iraq Railways

Sir Patrick Hannon on April 7 asked the Secretary of State for Foreign Affairs whether he would make a statement on the circumstances of, and the conditions which attached to, the transfer of the ownership of the Iraq Railways from His Majesty's Government to the Government of Iraq; and if he would give the original cost of the construction of those lines and the annual contribution towards the cost of maintenance out of Imperial funds during the past five years.

Viscount Cranborne (Under Secretary).—It was stipulated in Section 4 of the financial agreement attached to Anglo-Iraqi Treaty of 1930 that the legal ownership of the Iraqi railway system should be transferred on certain conditions from His Majesty's Government in the United Kingdom to the Iraqi Government. Insuperable difficulties were, however, encountered in giving effect to this arrangement, and, as a result of prolonged negotiations, an agreement was signed in Bagdad on March 31 for the transfer of the railways to the Iraqi Government on a different basis. This agreement is subject to ratification and will therefore be laid before Parliament in the usual manner in the form of a White Paper as soon as possible. As regards the second part of the question, the track was constructed at different periods and in varying circumstances and the greater part of the original track was built by the British authorities during the war for military purposes. In these circumstances any figure purporting to represent the original cost of construction, however calculated, would only be misleading and would bear no relation to the present commercial value of the existing railway system. There has been no contribution from Imperial funds towards the finances of the Iraqi railways since 1923.

### Gas Poisoning and Tube Railways

Mr. G. Lloyd (Parliamentary Secretary, Home Office), replying to a question by Mr. Kirkwood as to precautions against gas poisoning in the event of war, said that the question whether gas could reach the tube railways would depend upon the protective measures adopted in connection with the supply of air to the railways. Consideration had already been given to this question.

### First Class in East London Abolished

Mr. Thorne on April 6 asked the Minister of Transport whether he would make representations to the London Passenger Transport Board to abolish all first class coaches on the East London line.

Captain A. Hudson (Parliamentary Secretary).—The London Passenger Transport Board informs me that first

class accommodation on the trains on the East London line will be discontinued on and from Monday, May 4.

### Payments to Continental Authorities

Mr. Sexton asked the Chancellor of the Exchequer what was the total sum of money paid by the British Government to French railway authorities for the transport of men, munitions, nurses, and other services during the war of 1914-1919.

Mr. W. S. Morrison (Financial Secretary to the Treasury).—The total amount paid by His Majesty's Government to French railway authorities for transport from the outbreak of war to December 31, 1919, was approximately £30,500,000.

Mr. Sexton also asked the Chancellor of the Exchequer what was the total sum of money paid by the British Government to Belgian railway authorities for the transport of men, munitions, nurses and other services during the war of 1914-1919.

Mr. Morrison.—No payment was made by His Majesty's Government in respect of transport on the Belgian railways for the period from the outbreak of war to the armistice. The amount so paid in respect of services rendered after the armistice and up to December 31, 1919, was £1,603,446.

### Southern Railway Fares

Mr. George Griffiths on April 8 asked the Minister of Transport if he could state from what statute the Southern Railway Company derived its powers to charge special rates of fares to passengers travelling on its Continental trains.

Mr. Hore-Belisha.—The special scale of fares for passengers by boat express trains to Folkestone and Dover was settled by the Railway Rates Tribunal under Section 31 of the Railways Act, 1921.

### Liability for Accidents

Mr. Gallacher asked the Minister of Transport whether he was aware of the complaints by associations of commercial travellers concerning the conditions under which week-end tickets, daily voucher tickets, bulk travelling tickets, and other special term tickets were issued without any responsibility being accepted by the railway companies for injury, loss, damage, or delay; and whether it was his intention to take up this question with the four main railway companies.

Mr. Kennedy asked the Minister of Transport if he was aware that passengers using British railways were in certain cases assumed to have entered into a contract under which they had no legal right to claim compensation for loss, injury, damage, or delay, however caused; and if, as road passenger transport companies were by statute prevented from contracting out of their liabilities in this way, he would

take any steps to remove this anomaly and injustice to the travelling public.

Mr. Hore-Belisha, replying to both questions.—While I have no legal powers in this matter, I am drawing the attention of the railway companies to the many representations I received. In the meantime, the main-line railway companies have informed me that, excluding workmen, they have decided to apply this limitation in future only to passengers holding cheap day, half-day or evening tickets.

### Hull Timber Imports and L.N.E.R.

Captain Strickland asked the Minister of Transport whether he was aware that the timber importers of Hull had complained of insufficient accommodation at the Hull docks and had asked the London & North Eastern Railway Company to provide improved wharfage, unloading, and storage for the timber trade, and that the company had suggested, as a condition of their making the improvements, the requirements that all imported timber forwarded from the docks should be conveyed exclusively by railway; and whether he would make representations regarding this condition to the company.

Mr. Hore-Belisha.—I have no jurisdiction in this matter.

## Parliamentary Notes

### Progress of Railway Bills

The L.M.S.R. Bill, reported with amendments to the House of Commons on April 2 by the Unopposed Bills Committee, was on April 21 read the third time and passed in that House. Its principal purpose is to authorise the company to borrow £9,000,000 from the Railway Finance Corporation and to increase the company's capital powers by that amount for the purpose of affording collateral security for repayment of the sum so borrowed by the creation of 4 per cent. debenture stock. Power to acquire lands and for extensions of time and for alteration of highways in connection with the Euston improvement scheme is also included. The G.W.R. (Additional Powers) Bill, which was to have come before a Select Committee of the House of Commons on April 22, is now unopposed. Twelve petitions against it, including those of the Cornwall and Devon County Councils, were withdrawn on the previous day.

ANNIVERSARY OF GERMAN SCIENTIST.—The 250th anniversary of the death of Otto von Gericke, discoverer of the atmospheric pressure of air and inventor of the air pump, will be commemorated on May 11 at Magdeburg, his birthplace; at Hamburg, where he died on May 11, 1686; in the Deutsches Museum in Munich; and in the Technical High School, Berlin. His discoveries paved the way for the steam engine and more recent inventions.

## NOTES AND NEWS

**Institute of Transport Annual Dinner.**—The Institute of Transport announces that its next dinner has been arranged to take place at the Connaught Rooms, Great Queen Street, London, W.C.2, on Friday, February 19, 1937.

**New Norfolk Coast Halt.**—A new halt, to be known as Sidestrand, is to be opened for passenger traffic on May 25. It is on the Norfolk coast between Overstrand and Trimingham, not far from Cromer, on what was formerly the Norfolk and Suffolk Joint Railway and is now owned by the L.N.E.R. and Midland & Great Northern Railway.

**National Physical Laboratory.**—Pending the appointment of a successor to Sir Joseph Petavel as Director of the National Physical Laboratory, the post will be held by Sir Frank Smith, K.C.B., Secretary of the Department of Scientific and Industrial Research. Correspondence should be addressed to the Director, National Physical Laboratory, Teddington, Middlesex, as hitherto.

**Russian Railcars.**—The construction of railcars has begun in the U.S.S.R. at Kalouga works. At the moment a four-wheeled petrol-engined car 39 ft. long with a top speed of 58 m.p.h. is being standardised. Previous tests with a double-engined car designed for a top speed of 75 m.p.h. was said to have shown that this speed could not be maintained with safety, even on the best main lines.

**Road Accidents.**—The Ministry of Transport return for the week ended April 18 of persons killed or injured in road accidents is as follows. The figures in brackets are those for the corresponding periods of last year:

	Killed, including deaths resulting from previous accidents		Injured
England	... 88	(91)	3,578 (3,438)
Wales	... 5	(—)	159 (152)
Scotland	... 15	(11)	347 (352)
	108	(102)	(4,084) (3,942)

The total fatalities for the previous week were 103, as compared with 91 for the corresponding period of last year.

**Bekonscot Model Railway.**—The model railway and village at Bekonscot, Warwick Road, Beaconsfield, is again open to the public from 2 p.m. to 7 p.m. daily. The railway works between these times every Sunday afternoon, and on the first Saturday of every month until September. On other afternoons the village is open to inspection, although this year the addition of an airport to its already extensive transport facilities may be considered to have promoted it to the status of a town. There is, however, nothing urban in its scenery, which retains all its pristine charm of flowers, fields, watercourses, and woods. Admission is 1s., and the proceeds are in aid of the Railway Benevolent Institution and other charities. Bekonscot is only three minutes' walk from Beaconsfield station, G.W. and L.N.E. Railways,

to which cheap tickets are issued daily from Paddington, Marylebone, and intermediate stations to Princes Risborough.

**The Last Lynton & Barnstaple Engine.**—*Lew*, the only remaining locomotive of the 1 ft. 11½ in. gauge Lynton & Barnstaple Railway, has been sold to Mr. Castle, who is now using it in connection with the demolition of the track. When this work is finished, in about four months' time, the engine is to be overhauled by the makers, Manning, Wardle & Co. Ltd., prior to despatch for service in Brazil.

**Passenger Service Resumed to Achill, I.F.S.**—On Monday last, April 20, passenger train services were resumed temporarily between Westport and Achill, Great Southern Railways. The schedule provides for two services each weekday in each direction, and, during the period the train service remains in operation, the corresponding bus journeys are suspended. Passenger trains were withdrawn between Westport and Achill as from December 31, 1934.

**Westland Row and Broadstone Stations, Dublin.**—Extensive alterations are in progress at Dublin, Westland Row, station in connection with the intention to transfer Midland Great Western section trains to this station from Broadstone. The latter will then be closed as a station and used exclusively for road motors; we are officially informed that the change-over is not anticipated for some months. At Westland Row, in addition to lengthening the down platform, sidings are being laid near Grand Canal Street depot on the up side of the line. A new signal box has been built at Westland Row and part of the new colour-light signalling is in operation.

**A.E.C. Buses Converted for Rail Use in Argentina.**—For the past year the Central Argentine Railway has been successfully using two old Aclu petrol-engined, single-deck buses, coupled back-to-back and mounted on flanged wheels, for the conveyance of its workmen by rail, in the Rosario

area. A.E.C. products are, of course, marketed under the trade name Aclu in South America.

**Southdown Motor Services Limited.**—The directors of this company have decided, having regard to existing monetary conditions and to its large cash resources, to redeem the whole of the £80,300 of 6 per cent. first mortgage debenture stock now outstanding. In the event of the company being unable to purchase stock under par before the close of the year, a drawing will take place in May next, for the purpose of redeeming £3,200 stock at par. The balance then remaining will be redeemed on November 1, 1936, at the rate of £105 for each £100 stock.

**Farringdon Station, London.**—Farringdon & High Holborn station will be known in future as Farringdon station, in accordance with a decision which has been made by the London Passenger Transport Board. When the Metropolitan Railway was opened in 1863, the station was called Farringdon Street. In 1922 the name was altered to Farringdon & High Holborn, with the object of giving passengers a better idea of the area served. London Transport has been of opinion for some time that this name was confusing because High Holborn is a considerable distance from the station, and the board's opinion was confirmed by suggestions from correspondents.

**The "Queen Mary" Travel Bureau.**—Passengers on the *Queen Mary* will be able to make on board all their travel arrangements, including the purchase of railway tickets and reservation of hotel accommodation. By arrangement with the Cunard White Star Line, a fully equipped railway and travel information bureau is to be provided representing the four British main-line railway companies, the Great Southern Railways of Ireland, and the Travel Association of Great Britain and Northern Ireland. The staff of the bureau, provided by the British railways, will also be able to show films. The travel film library will contain films depicting the beauty spots of the British Isles, as well as films of railway interest. Lectures on travel subjects will also be given. Among other services which the



Converted buses in use as a workmen's railcar in Argentina

bureau will provide are the issue of tickets and the making of reservations in respect of steamship travel between Great Britain and Ireland; by railway routes between Great Britain and the Continent of Europe; by Railway Air Services and associated companies; and the booking of reservations for accommodation at railway hotels in Great Britain.

**A London Underground Broadcast.**—In the National broadcasting programme on May 8, at 8 p.m., a broadcast entitled "Underground" has been arranged. The microphone will visit London underground railway platforms, escalators and lifts, the traffic controller's office, a depot, power house, and the lost property office. This programme is being prepared in co-operation with the London Passenger Transport Board, and various of its employees will speak.

**Scottish "Queen Mary" Traffic.**—Over 100,000 passengers were conveyed by rail to see the *Queen Mary* last week-end, when the liner returned to the Clyde in the course of her trials. On Friday, April 17, special trains ran from many points in West Scotland to Greenock and Gourock. Combined rail and steamer excursions were run by the L.M.S.R. on Saturday, April 18, enabling passengers to see the ship at speed off Arran, but traffic reached its peak when the liner returned to Gourock the same evening to spend the final hours in Clyde waters. On this occasion both the L.M.S.R. and the L.N.E.R. organised steamer trips in connection with rail excursions from a wide area of Scotland.

**More S.R. Passengers Last Year.**—Southern Railway returns show that from London more than 11,300,000 passenger journeys were made to seaside and provincial towns during 1935, or an average of over 218,500 a week. This figure, which excludes season ticket journeys, is an increase of 420,000 over 1934 and 1,050,000 over 1933. Nearly 13,000,000 journeys were made on the electric services to Brighton, Hove and Worthing last year; during the latter half of the year—when electric trains were running to Eastbourne, Seaford, Bexhill, and Hastings—nearly 3½ million journeys were made to those towns, an increase of more than half a million over the same period of the previous year. Southern Railway Continental traffic increased by 145,000 during 1935, the total of 1,682,000 passengers to and from the Continent comparing with 1,536,000 in 1934.

**Canadian National Debenture Stock.**—The Canadian National Railway Company announces that, in accordance with the scheme of arrangement and under the provisions of Chapter 7 of the Statutes of Canada, 1927, it will on July 1 next have £186,016 of sinking fund moneys available for the redemption of a part of the C.N.R. 1927 guaranteed debenture stock which was issued in exchange for the Grand Trunk Pacific Railway Company

4 per cent. debenture stock. Tenders are invited for the sale of stock to the company for redemption and cancellation, and may be made at any price not less than £60 or more than £100 per £100 of stock, including accrued interest thereon from January 1 to July 1, 1936.

**Austro-Hungarian State Railway Annuities.**—We are officially informed that the Austrian shares of about fr. 580,000 (French) of the Hungarian portion of fr. 5,500,000 of the annuity of the former Austro-Hungarian State Railways have been sold by Helbert, Wagg & Co. to the Mercur Bank of Vienna, which is controlled by the Dresden Bank of Berlin. These annuities are due to be paid until 1965 at 12 per cent. interest, and the purchase price paid corresponds, approximately, to the present discounting values.

**Southern Railway Rating.**—The question of the Southern Railway assessment was again before the Railway and Canal Commission on April 21, 22, and yesterday, on a motion by the Railway Assessment Authority and certain local authorities asking the Commission to review on points of detail its previous decision, in the light of the judgment of the House of Lords. The principal point was whether the Court, in arriving at a deduction of £11,686,000 for depreciation from the replacement value of rolling stock, had taken all material matters into consideration, and whether this figure ought not to have been larger.

**"London to Southampton and Beyond."**—At the meeting of the Railway Club on April 2, Mr. C. N. Anderson gave an address entitled as above. From the first project of a railway from London to Southampton in 1831, Mr. Anderson traced its history up to the opening throughout in 1840. The line was described in detail and many interesting items of present-day working and personal experiences were mentioned. Dealing with the railway beyond Southampton, Mr. Anderson referred to the phenomenal growth of Bournemouth, which was not reached by railway until 1870, when a branch was opened from Ringwood. The complex history of the lines in this area was explained, and the whole line from Southampton to Easton was described in an informative way only possible with Mr. Anderson's first-hand knowledge and wide experience.

**Making Up Lost Time.**—During the heavy Easter holiday traffic we noted a remarkable example of lost time recovery on the L.M.S.R., wherein the second portion of the 5.25 p.m. from Liverpool to Euston made up no fewer than 15 minutes on its 64.5 m.p.h. run from Crewe to Willesden Junction. Three times on this stretch the Flyer was brought to a stand by adverse signals, and two other less severe delays occurred, and yet the 152.7 miles were covered in 140½ minutes—1½ minutes inside schedule time. Two Class 5X 4-6-0 locomotives were used,

Nos. 5524 and 5673, hauling a load of 415 tons behind the second tender. For 99.3 miles of the journey speed averaged 80 m.p.h., while for 58 miles the average was as high as 83 m.p.h. 85 m.p.h. was sustained on the level between Weedon and Blisworth; the highest speed was 90 m.p.h., which was touched twice, and there were two further maxima of 88 m.p.h., but perhaps the most astonishing feat of all was a well-sustained minimum rate of 75 m.p.h. at Tring summit after 6 miles rising at 1 in 333. The net time was not more than 127 minutes, giving a start to stop average of 72.3 m.p.h. throughout. With a load of over 200 tons to each engine, this was magnificent locomotive work, but no less praiseworthy was the way in which the two pairs of enginemen did their utmost to keep time in the face of such delays. This determination was never more apparent than in their recovery after the last and most severe check, when the acceleration was such that only 5½ miles from the restart the train was travelling at 75 m.p.h.

**Northern Ireland Traffics.**—On railways wholly in Northern Ireland, the number of passengers (exclusive of season-ticket holders) carried during the month of January, 1936, was 273,792, against 270,207 in January, 1935, and receipts from passengers were £15,547, compared with £14,977. Merchandise and minerals carried in January, 1936, were 53,627 tons, against 48,736 in January, 1935, and the total receipts from goods traffic were £18,664, compared with £15,522. On railways partly in Northern Ireland, passengers in January, 1936, numbered 342,440, against 315,144 in January, 1935, and passenger receipts were £26,447 compared with £25,573. Goods and minerals carried in January, 1936, were 80,898 tons, compared with 90,076 in January, 1935, and total receipts from goods traffic amounted to £52,892, against £52,202.

**Easter Traffic in Switzerland.**—Traffic during the Easter holidays was adversely affected by the bad weather which prevailed throughout the greater part of the country, especially on Easter Sunday and Monday. On the basis of the figures supplied by 30 important stations, it is estimated that the total receipts of the Federal Railways amounted to about fr. 3,356,000, or fr. 78,000 less than for Easter, 1935. Nevertheless, 402 special trains were provided, between April 9 and 13, by Zurich, Basle, Lucerne, Berne, Lausanne, and Geneva stations. Zurich, alone ran 157 special trains and 44 empties. Winter sports traffic was particularly heavy for the Grisons, Central Switzerland, and the Bernese Oberland, and there was an increase in the number of visitors to the Canton Tessin and the Lake of Geneva district. As regards traffic to neighbouring countries, the figures for France and Austria were approximately the same as in 1935, whereas there was a decrease in the cases of Italy and Germany.

## British and Irish Traffic Returns

GREAT BRITAIN	Totals for 16th Week			Totals to Date		
	1936†	1935	Inc. or Dec.	1936	1935	Inc. or Dec.
L.M.S.R. (6,917 mls.)						
Passenger-train traffic...	454,000	638,000	- 184,000	6,413,000	6,277,000	+ 136,000
Merchandise, &c. ....	424,000	407,000	+ 17,000	7,381,000	7,156,000	+ 225,000
Coal and coke ....	185,000	226,000	- 41,000	4,264,000	4,168,000	+ 96,000
Goods-train traffic ....	609,000	633,000	- 24,000	11,645,000	11,324,000	+ 321,000
Total receipts ....	1,063,000	1,271,000	- 208,000	18,058,000	17,601,000	+ 457,000
L.N.E.R. (6,333 mls.)						
Passenger-train traffic...	306,000	386,000	- 80,000	4,229,000	4,165,000	+ 64,000
Merchandise, &c. ....	311,000	265,000	+ 46,000	5,142,000	4,955,000	+ 187,000
Coal and coke ....	194,000	198,000	- 4,000	3,955,000	3,828,000	+ 127,000
Goods-train traffic ....	505,000	463,000	+ 42,000	9,097,000	8,783,000	+ 314,000
Total receipts ....	811,000	849,000	- 38,000	13,326,000	12,948,000	+ 378,000
G.W.R. (3,746½ mls.)						
Passenger-train traffic...	199,000	266,000	- 67,000	2,677,000	2,633,000	+ 44,000
Merchandise, &c. ....	156,000	164,000	- 8,000	2,925,000	2,863,000	+ 62,000
Coal and coke ....	64,000	97,000	- 33,000	1,720,000	1,704,000	+ 16,000
Goods-train traffic ....	220,000	261,000	- 41,000	4,645,000	4,567,000	+ 78,000
Total receipts ....	419,000	527,000	- 108,000	7,322,000	7,200,000	+ 122,000
S.R. (2,154 mls.)						
Passenger-train traffic...	276,000	381,000	- 105,000	4,052,000	3,971,000	+ 81,000
Merchandise, &c. ....	57,500	55,500	+ 2,000	928,500	950,500	- 22,000
Coal and coke ....	28,500	26,500	+ 2,000	571,500	533,500	+ 38,000
Goods-train traffic ....	86,000	82,000	+ 4,000	1,500,000	1,484,000	+ 16,000
Total receipts ....	362,000	463,000	- 101,000	5,552,000	5,455,000	+ 97,000
Liverpool Overhead ... (6½ mls.)	1,169	1,099	+ 70	17,894	17,430	+ 464
Mersey (4½ mls.) ...	4,098	4,046	+ 52	66,333	65,126	+ 1,207
*London Passenger Transport Board ...	550,400	526,500	+ 23,900	22,801,400	22,373,200	+ 428,200
IRELAND						
Belfast & C.D. pass. (80 mls.)	3,184	1,949	+ 1,235	28,985	27,570	+ 1,415
" " goods	487	611	- 124	8,313	7,753	+ 560
" " total	3,671	2,560	+ 1,111	37,298	35,323	+ 1,975
†Great Northern pass. (543 mls.)	12,950	10,250	+ 2,700	124,750	116,450	+ 8,300
" " goods	8,100	10,050	- 1,950	146,850	140,650	+ 6,200
" " total	21,050	20,300	+ 750	271,600	257,100	+ 14,500
†Great Southern pass. (2,076 mls.)	40,143	33,717	+ 6,426	424,804	405,921	+ 18,883
" " goods	39,957	40,762	- 805	624,814	600,187	+ 24,627
" " total	80,100	74,479	+ 5,621	1,049,618	1,006,108	+ 43,510

\* 42nd week, the receipts for which include those undertakings not absorbed by the L.P.T.B. in the corresponding period last year; last year's figures are, however, adjusted for comparative purposes

† 15th week.

## British Railway Stockholders' Union

The British Railway Stockholders' Union has issued a memorandum embodying the attitude of the union towards the proposals put forward by the railway companies with a view to a settlement of the men's claim to the balance of the wage cuts. In a settlement similarly arrived at in 1934 it was agreed to restore one half of the 1931 cuts at a cost of approximately £1,100,000 per annum for the four systems. The present decision is described as a compromise arrived at between the railway management and the trade unions which, like the 1934 settlement, cannot be justified by any comparison of net revenue figures, but which, in addition, entirely ignores the long discussed and carefully framed arrangement for a National Tribunal which, it was understood, would determine such issues if a friendly settlement could not be arrived at.

The Committee of the Stockholders'

Union recognises that conciliation, if fair to both parties, may constitute the means of a better settlement than reference to a tribunal, but it wishes to insist that the proposals put forward by the companies involve serious injustice to the long-suffering body of stockholders. The net revenue of 1935 is less by nearly £5,000,000 than when the cut was awarded and the stockholders' losses during the last six years, as measured by the difference between the net revenue actually realised and that contemplated as standard revenue under the settlement of 1921, amounts to more than £116,000,000.

## Forthcoming Meetings

May 5 (Tues.)—International Sleeping Car Company (Ordinary General), 53 Boulevard Clovis, Brussels, at 2 p.m.  
May 6 (Wed.)—Canadian Pacific Railway Company (Annual General), Head Office, Montreal, at 12 noon.

## British and Irish Railways Stocks and Shares

Stocks	Highest 1935	Lowest 1935	Prices	
			April 22, 1936	Rise/Fall
G.W.R.				
Cons. Ord. ....	551 <sub>2</sub>	441 <sub>2</sub>	481 <sub>2</sub>	- 1
5% Con. Prefee. ....	124	108	121 <sub>1</sub> <sub>2</sub>	+ 1
5% Red. Pref. (1950) ....	117	106 <sub>5</sub> <sub>4</sub>	109 <sub>1</sub> <sub>2</sub>	—
4% Deb. ....	118 <sub>1</sub> <sub>2</sub>	108	115	+ 1 <sub>2</sub>
4½% Deb. ....	122	110	118 <sub>1</sub> <sub>2</sub>	—
4½% Deb. ....	129 <sub>1</sub> <sub>2</sub>	118	127 <sub>1</sub> <sub>2</sub>	—
5% Deb. ....	140 <sub>1</sub> <sub>4</sub>	130	140 <sub>1</sub> <sub>2</sub>	—
24% Deb. ....	82 <sub>1</sub> <sub>2</sub>	68 <sub>1</sub> <sub>2</sub>	78	—
5% Rt. Charge ....	137	128	134 <sub>1</sub> <sub>2</sub>	—
5% Cons. Guar. ....	136 <sub>5</sub> <sub>4</sub>	120 <sub>1</sub> <sub>2</sub>	131 <sub>1</sub> <sub>2</sub>	+ 1
L.M.S.R.				
Ord. ....	255 <sub>1</sub> <sub>8</sub>	16	24	+ 1 <sub>2</sub>
4% Prefee. (1923) ....	58 <sub>1</sub> <sub>4</sub>	43 <sub>1</sub> <sub>2</sub>	71 <sub>1</sub> <sub>2</sub>	+ 1 <sub>2</sub>
4% Prefee. ....	87 <sub>1</sub> <sub>2</sub>	73 <sub>1</sub> <sub>2</sub>	87 <sub>1</sub> <sub>2</sub>	+ 1 <sub>2</sub>
5% Red. Pref. (1955) ....	107	97 <sub>5</sub> <sub>4</sub>	107 <sub>1</sub> <sub>2</sub>	—
4% Deb. ....	110 <sub>1</sub> <sub>4</sub>	99 <sub>1</sub> <sub>2</sub>	110 <sub>1</sub> <sub>2</sub>	+ 1 <sub>2</sub>
5% Red. Deb. (1952) ....	1191 <sub>1</sub> <sub>6</sub>	111 <sub>6</sub> <sub>1</sub> <sub>6</sub>	118 <sub>1</sub> <sub>2</sub>	—
4% Guar. ....	105 <sub>5</sub> <sub>8</sub>	95 <sub>1</sub> <sub>2</sub>	105 <sub>1</sub> <sub>2</sub>	+ 1 <sub>2</sub>
L.N.E.R.				
5% Pref. Ord. ....	157 <sub>8</sub>	81 <sub>4</sub>	111 <sub>4</sub>	+ 1 <sub>4</sub>
Def. Ord. ....	78 <sub>1</sub> <sub>6</sub>	45 <sub>4</sub>	55 <sub>5</sub> <sub>6</sub>	—
4% First Prefee. ....	74 <sub>3</sub> <sub>4</sub>	48	69	+ 1 <sub>2</sub>
4% Second Prefee. ....	31 <sub>3</sub> <sub>8</sub>	161 <sub>4</sub>	27	+ 1
5% Red. Pref. (1955) ....	92 <sub>1</sub> <sub>4</sub>	71	93 <sub>1</sub> <sub>2</sub>	—
4% First Guar. ....	1031 <sub>1</sub> <sub>8</sub>	93	103	—
4% Second Guar. ....	98 <sub>3</sub> <sub>4</sub>	82 <sub>1</sub> <sub>2</sub>	96 <sub>1</sub> <sub>2</sub>	+ 1
3% Deb. ....	86	75	84	+ 1
4% Deb. ....	109 <sub>1</sub> <sub>4</sub>	98 <sub>1</sub> <sub>2</sub>	108 <sub>1</sub> <sub>2</sub>	+ 1 <sub>2</sub>
5% Red. Deb. (1947) ....	118 <sub>1</sub> <sub>2</sub>	106 <sub>1</sub> <sub>2</sub>	112 <sub>1</sub> <sub>2</sub>	—
4½% Sinking Fund Red. Deb. ....	112 <sub>1</sub> <sub>2</sub>	108	109 <sub>1</sub> <sub>2</sub>	—
SOUTHERN				
Pref. Ord. ....	87 <sub>1</sub> <sub>2</sub>	69 <sub>3</sub> <sub>8</sub>	95	—
Def. Ord. ....	2513 <sub>1</sub> <sub>6</sub>	163 <sub>4</sub>	24	—
5% Prefee. ....	124	108 <sub>4</sub>	121 <sub>1</sub> <sub>2</sub>	—
5% Red. Pref. (1964) ....	117 <sub>3</sub> <sub>4</sub>	109 <sub>2</sub> <sub>2</sub>	118 <sub>1</sub> <sub>2</sub>	—
5% Guar. Prefee. ....	136 <sub>1</sub> <sub>2</sub>	121 <sub>1</sub> <sub>2</sub>	131 <sub>1</sub> <sub>2</sub>	—
5% Red. Guar. Pref. (1957) ....	121 <sub>1</sub> <sub>4</sub>	112 <sub>1</sub> <sub>2</sub>	117 <sub>1</sub> <sub>2</sub>	—
4% Deb. ....	116 <sub>3</sub> <sub>4</sub>	107	113 <sub>1</sub> <sub>2</sub>	—
5% Deb. ....	138	130 <sub>1</sub> <sub>4</sub>	138 <sub>1</sub> <sub>2</sub>	—
4% Red. Deb. ....	115	106 <sub>1</sub> <sub>2</sub>	115 <sub>1</sub> <sub>2</sub>	—
BELFAST & C.D.				
Ord. ....	9	4	9	—
FORTH BRIDGE				
4% Deb. ....	1111 <sub>1</sub> <sub>4</sub>	104 <sub>1</sub> <sub>2</sub>	105 <sub>1</sub> <sub>2</sub>	—
4% Guar. ....	1097 <sub>8</sub>	104	105 <sub>1</sub> <sub>2</sub>	—
G. NORTHERN (IRELAND)				
Ord. ....	20	7	16 <sub>3</sub> <sub>4</sub>	+ 1 <sub>2</sub>
G. SOUTHERN (IRELAND)				
Ord. ....	57 <sub>1</sub> <sub>2</sub>	141 <sub>2</sub>	55	+ 71 <sub>2</sub>
Prefee. ....	50	25 <sub>1</sub> <sub>4</sub>	59 <sub>1</sub> <sub>2</sub>	+ 1 <sub>2</sub>
Guar. ....	88 <sub>5</sub> <sub>4</sub>	51 <sub>1</sub> <sub>4</sub>	84 <sub>1</sub> <sub>2</sub>	—
Deb. ....	86 <sub>1</sub> <sub>4</sub>	70	89 <sub>1</sub> <sub>2</sub>	- 1 <sub>4</sub>
L.P.T.B.				
4½% "A" ....	130	119 <sub>5</sub> <sub>4</sub>	125 <sub>1</sub> <sub>2</sub>	+ 1
5% "A" ....	139 <sub>3</sub> <sub>4</sub>	130	135 <sub>1</sub> <sub>2</sub>	+ 1
4½% "T.F.A." ....	113 <sub>3</sub> <sub>4</sub>	108	110	—
4½% "B" ....	131 <sub>1</sub> <sub>2</sub>	122 <sub>3</sub> <sub>4</sub>	128	+ 1
"C" ....	109 <sub>1</sub> <sub>2</sub>	91	105	—
MERSEY				
Ord. ....	231 <sub>1</sub> <sub>8</sub>	91 <sub>4</sub>	261 <sub>2</sub>	—
4% Perp. Deb. ....	100 <sub>1</sub> <sub>2</sub>	93 <sub>1</sub> <sub>2</sub>	97 <sub>1</sub> <sub>2</sub>	—
3% Perp. Deb. ....	75 <sub>1</sub> <sub>2</sub>	67	76	—
3% Perp. Prefee. ....	62	47 <sub>1</sub> <sub>4</sub>	64 <sub>1</sub> <sub>2</sub>	—

## CONTRACTS AND TENDERS

The Birmingham Railway Carriage & Wagon Co. Ltd. has received an order for conversion material required to convert an articulated steam railcar to an articulated diesel railcar from the Entre Rios Railway.

### L.M.S.R. Bolster Truck Orders

The L.M.S.R. has placed orders for 500 20-ton, 27 ft. long, double-bolster trucks as follow:—

Metropolitan-Cammell Carriage & Wagon Co. Ltd., 200 trucks.

Charles Roberts & Co. Ltd., 200 trucks.

Birmingham Railway Carriage & Wagon Co. Ltd., 100 trucks.

The L.M.S.R. has also placed an order with Hurst Nelson & Co. Ltd. for 25 30-ton bogie bolster trucks.

The Bengal-Nagpur Railway is prepared to receive tenders for 2,000 chilled cast-iron wheels. Application for tender forms should be made to the London office. (Closing date May 1.)

The Vulcan Foundry Limited has received an order from the Madras & Southern Mahratta Railway to the inspection of Messrs. Rendel, Palmer & Tritton, for 7 boilers for class FS 2-6-4 tank locomotives, and 8 boilers for class VS 0-6-0 tender locomotives.

The Eastern Railway of France has placed orders for the following all-steel suburban rolling stock: 25 third class carriages to the Anciens Etablissements Cael; 20 third class carriages to the Cie. Industrielle de Matériel de Chemin de fer; 20 third class carriages to the Soc. Franco-Belge; and 25 second and third class composite carriages to the Soc. Lorraine.

Leyland Motors Limited has received an order for 15 diesel-engined Beavers. Four vehicles from the Northern Ireland Road Transport Board.

The Associated Equipment Co. Ltd. has received orders from railway and railway-associated road transport operators as follow:—

London Passenger Transport Board: 500 diesel-engined Regents, eight Mercurys, one Matador.

Pickfords Limited: 18 diesel-engined Matadors and two diesel-engined Mammoth Major 8's.

Ottawa Electric Railway Company: one diesel-engined Ranger.

Sydney Transport Board: eight diesel-engined Regents.

J. Baker & Bessemer Limited has received an order from the Buenos Ayres Western Railway for about 700 steel locomotive, carriage and wagon tyres.

The Locomotive Firebox Company, of America, has received orders for Nicholson thermic syphons for six 4-6-4 tank locomotives for the Austrian Federal Railways, and two Garratt-type locomotives for the Royal Siamese State Railways, all of which are now under construction in Germany.

Nicholson thermic syphons have been ordered for 37 new locomotives now being built for American railways.

The L.N.E.R. has recently placed contracts for road motor vehicles as follow:—

Vauxhall Motors Limited, ten 30-cwt. Bedford chassis, and one 40-cwt. Bedford chassis.

Morris-Commercial Cars Limited, Birmingham, one 40-cwt. Morris Commercial chassis with platform body and hinged sides.

North London Engineering Co. Ltd., building and mounting nine 30-cwt. fixed-sided bodies with cabs, and building and mounting one 30-cwt., one 40-cwt. body with hoop sticks and sheet (short).

The Indian Stores Department is calling for tenders, for the supply and delivery of steel tyres and axles, to be presented in Simla by May 14. Further particulars may be obtained from the Department of Overseas Trade.

The Quasi Arc Co. Ltd. has received an order from the Buenos Ayres Great Southern Railway for four electric arc welding equipments, complete with Lister diesel engines and portable electric grinders, and an order from the Buenos Ayres Western Railway for two sets of similar equipment.

The Quasi Arc Co. Ltd. has also received orders from the Central Argentine Railway for one Quasi Arc transformer welding equipment for three operators, and one single-operator petrol driven portable set.

The Bombay, Baroda & Central India Railway is calling for tenders for carriage and wagon axles and tyres, and chemically-dressed wagon covers, by May 8, and steel material by May 13. Tender forms may be obtained from the Secretary, White Mansion, 91, Petty France, Westminster, S.W.1.

The Egyptian State Railway Administration is calling for tenders, through the Chief Inspecting Engineer in London, for the following:—

One 15,000-gal. and one 40,000-gal. water tank with bearing girders, bracings, foundation plates, and bolts, and all necessary fittings. (Closing date May 19.)

50 repeater combined distant-signal arms and lights, and 50 thermal contacts for distant-signal lamps. (Closing date to be fixed by London office.)

**GERMAN ROLLING STOCK PROGRAMME.**—Additions have been made by the Reichsbahn to the programme of construction previously drawn up for 1936. The new items comprise 61 steam and three electric locomotives, 64 railcars of diesel and electric types, 338 carriages, and 120 goods wagons. The total value of these orders is about RM. 180,000,000.

## Forthcoming Events

Apr. 24 (Fri).—Institute of Transport (Leeds Graduate), at Leeds Transport Department, 7 p.m. Annual General Meeting.

Institute of Transport (Manchester-Liverpool), at Manchester, 6.30 p.m. Annual General Meeting. "The Outlook for Transport," by Mr. D. R. Lamb.

Institute of Transport (Newcastle), at Royal Station Hotel, 7.30 p.m. Annual General Meeting.

Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, 6 p.m. Second Report of the Welding Research Committee.

Apr. 25 (Sat).—L.N.E.R. (G.C.) Debating Society, at Friends' Meeting House, Sheffield, 4.30 p.m. "What Happens Behind the Light Switch," by Mr. W. Hill.

Apr. 27 (Mon).—Royal Society of Arts, John Street, London, W.C.2, 8 p.m. "Problems of Road Research (Lecture II)," by Mr. R. Stradling.

Apr. 28 (Tues).—Diesel Engine Users' Association, at Caxton Hall, Caxton Street, London, S.W.1, 5 p.m. Informal Discussion. "The Horizontal *versus* the Vertical Oil Engine."

Apr. 29 (Wed).—Institution of Civil Engineers, at Savoy Hotel, Victoria Embankment, London, W.C.2, 7.15 for 7.45 p.m. Annual Dinner.

Apr. 30 (Thurs).—Institution of Electrical Engineers, Savoy Place, London, W.C.2, 6 p.m. "Main Line Electrification throughout the World, with Special Reference to the Austrian Federal Railways," by Mr. E. Kaan.

May 1 (Fri).—Past and Present Crewe Pupils and Premiums, at Trocadero Restaurant, Shaftesbury Avenue, London, W.1. Annual Dinner.

May 4 (Mon).—Royal Society of Arts, John Street, London, W.C.2, 8 p.m. "Problems of Road Research (Lecture III)," by Mr. R. Stradling.

May 5 (Tues).—Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. James Forrest Lecture.

May 6 (Wed).—Institute of Metals, at Inst. of Mechanical Engineers, Storey's Gate, London, S.W.1, 8 p.m. "The Escape of Electricity from Metals: Its Practical Consequences," by Mr. C. Paterson.

Royal Society of Arts, John Street, London, W.C.2, 8 p.m. "The Oil Engine and its Influence on Road, Rail and Air Transport," by Mr. G. M. Junner.

May 7 (Thurs).—Institution of Electrical Engineers, Savoy Place, London, W.C.2, 6 p.m. Annual General Meeting. Corporate Members and Associates only.

## Exports of Railway Material from the United Kingdom in March

	Mar., 1936	Mar., 1935	Mar., 1936	Mar., 1935
Locomotives, rail ..	212,079	76,876	448,439	227,360
Carriages and wagons ..	182,068	96,524	481,046	247,257
Rails, steel ..	65,553	44,990	191,444	189,462
Wheels, sleepers, fishplates and miscellaneous materials ..	52,966	105,735	133,492	299,333

Locomotive and rail exports included the following:—

	Locomotives Mar., 1936	Locomotives Mar., 1935	Rails Mar., 1936	Rails Mar., 1935
Argentina ..	—	—	3,864	5,488
Union of South Africa ..	—	—	5,677	18,174
British India ..	7,936	3,150	16,369	30,380

## OFFICIAL NOTICES

## Bengal-Nagpur Railway Company Limited

THE Directors are prepared to receive Tenders for:—

## 2,000 CHILLED CAST IRON WHEELS.

Specification and form of tender can be obtained at the Company's Offices, 132, Gresham House, Old Broad Street, London, E.C.2, on or after Monday, 20th April, 1936.

A fee of 20s. will be charged for each copy of the specification, which is not returnable. Tenders must be submitted not later than Noon on Friday, 1st May, 1936.

The Directors do not bind themselves to accept the lowest or any tender, and reserve to themselves the right of reducing or dividing the order.

By Order of the Board,  
T. R. WYNNE,  
Managing Director.

THE proprietor of British Patents Nos. 198,975, dated May 2, 1922, and 329,720, dated March 1, 1929, relating to "Improvements in Underframes for Railway and Like Vehicles" and "Improvements in Railway Rolling Stock Underframe Structures" respectively, is desirous of entering into arrangements by way of a licence or otherwise on reasonable terms for the purpose of exploiting the above patents and ensuring their practical working in Great Britain. Inquiries to B. Singer, Steger Building, Chicago, Illinois.

## Important Return Load Decision

An important decision affecting the conveyance of long-distance return loads by road was given by the Chairman of the Appeal Tribunal on March 19, in connection with an appeal by Barratt & Co. Ltd., Wood Green, London, to which the L.M.S., L.N.E., and G.W. Railways were respondents. The facts are that, following the basic year, Barratts had 42 vehicles, of which 26 were operated under C licences and 16 under B licences. These vehicles conveyed the firm's own goods on the outward journey, but under the B licences they were allowed to convey a limited tonnage of specific commodities for hire or reward on the return journey from such places as Manchester, Salford, Liverpool and Devonshire. In July, 1935, they applied for a continuance of the B licences for 16 vehicles, and this

application, which was opposed by the railway companies, was heard by Mr. Gleeson Robinson, the Metropolitan Area Licensing Authority, on September 19. It then transpired that by reason of the tonnage conveyed under these licences at very low rates, the firm had been able to secure certain revenue for its road haulage department, which made it possible for it to compete with other traders in the sale of confectionery, &c. The Licensing Authority indicated that, in his view, the use of transport for this purpose was incorrect, and intimated that there should be a gradual reduction in the number of vehicles operating under B licences. An offer was made on behalf of the applicants that three vehicles should at once be transferred from B to C licences, and this was accepted by the Authority.

Barratt & Co. Ltd. then lodged an appeal against this decision, and the reserved decision of the Appeal Tribunal was given by Mr. Rowand Harker, K.C., on March 19. He then expressed the view that, generally speaking, traders should not be allowed to carry goods for hire or reward on long-distance journeys if there were *bona fide* carriers able to provide these facilities. In this case he had to take into consideration the fact that there were ample railway facilities for the conveyance of the appellants' goods and, in addition, there were not only railway facilities for the carriage of the return loads, but also facilities provided by road hauliers whose sole business it was, and who were the holders of A licences. For these reasons it was not in the public interest that the licences in question should be granted, and the appeal was therefore dismissed with an award of costs jointly to the railway companies concerned.

## Containers on the Continent

Following the example of the British lines, Continental railways have, for the past two years, been rapidly developing their container traffic. Whereas there are some 14,000 containers operated by the British railways, France has now over 10,000 of the standard (large) type, partly railway-and partly privately-owned; a further 1,000 new containers are also under construction. The Italian State Railways have approximately 1,000 containers, of which over 300 are insulated, and were formerly used for the transport of fruit to Paris, London and Hamburg, but are now in East Africa for the transport of fresh meat from Massouah to the Ethiopian front. Quite recently Hungary has introduced a number of refrigerating containers for the carriage of poultry to London.

The German State Railway uses a small type of container, with a loading capacity of 1 to 1.2 tonnes, which can be carried in box cars as well as on flat trucks: there are at present 16,000 of these and their number is steadily increasing. During the Christmas week the railways placed 12,000 small containers at the disposal of the shippers, but 15,000 could have been used had they been available. The French railways will also shortly put 3,000 small containers into service, and the Belgian National Railways have 1,100 of this

type, with 500 on order. The Italian State Railways, too, intend to introduce a large number of small containers. The International Container Bureau in Paris has recently worked out draft standard conditions for containers of this kind: they must have a capacity of between 1 cu. m. and 3 cu. m. and must be equipped with wheels or runners. Only goods carried in such containers will be rated as net weights.

At the tests which are being held on the occasion of the third ordinary General Assembly of the International

Container Bureau in Frankfort from April 20 to 25, the following types of container are being tested: ordinary containers corresponding to international standard conditions; containers for continental railways only, too big for the British railway loading gauge; small containers; special types of containers; containers for the transport of liquids, insulated and refrigerating containers, containers for transport of special goods (such as furniture, cigarettes, or biscuits). The British Railways will be represented at these tests and it is very probable that as on previous occasions British containers will also be shown.

## Compulsory Retirement of Spanish Directors

The *Madrid Gazette* of April 9 publishes a Ministerial Order, under which certain directors of the Northern of Spain and Madrid Saragossa Alicante Railways are judged to be unsuitable as such, because they also figure as directors of an affiliated company formed last year to supply railcars to the railways. This drastic intervention in the affairs of the companies is justified by reference to the Law of September 9, 1932, which laid it down that no director of a railway company could also be a director of a firm supplying railway material. The law allowed a director to elect between one company and another, but the present

order gives the persons in question no option since, it says, the directors took up the new posts at a date later than that of the original law.

The directors whose retirement from the Northern Railway of Spain board of directors is thus ordered are Señor Domingo de Espalza and Señor Juan Antonio Bravo, while the Assistant Manager, Señor Flobert, is also included in the order. On the M.Z.A. Señores Mariano Marfil and Blas Vives are the directors concerned and Señor Emilio Santiago is the Assistant Manager to retire. Señor Marfil was only recently elected Chairman of the board of directors.

April 24, 1936

## Railway Share Market

Comparatively quiet conditions have prevailed in the stock and share markets. The influence of the Budget proposals was negligible, although there was a slightly easier tendency in gilt-edged stocks on suggestions that the increase in the standard rate of income tax may, as time proceeds, influence a movement to exchange into fixed-interest bearing issues, which while not right in the front rank from the investment point of view, offer more attractive yields.

Home Railway preference stocks are included in the latter category and they have made better prices this week. This was, however, attributed in the main to the belief in the market that if the rate of increase in traffics were maintained for the rest of the year there would be scope

for good appreciation in prices of Home Railway stocks generally. Comparing Easter week this year with Easter week last year the traffics of the four main lines show an increase of £52,000.

L.M.S. 4 per cent. preference and 1923 preference responded to the traffics and the ordinary stock also made a higher price. L.N.E. first preference is also fractionally higher and not only the second preference but the preferred and deferred also showed improvement. Southern preferred strengthened, but the deferred were rather out of favour on some disappointment with the traffic figures. Guaranteed preference issues were moderately higher, including L.N.E. first and seconds and Great Western fives. Among debenture stocks Great Western

fours and L.N.E. threes and fours were more than half a point higher. London Transport "C" reacted rather sharply at the beginning of the week on talk of an increase in the tax on heavy oils, but when it was realised these fears were unfounded there was recovery in the price.

Among foreign railway stocks there was a better tendency in B.A. Great Southern. The 5 per cent. preference moved up nearly  $1\frac{1}{2}$  points and the 6 per cent. preference was fractionally better. Cordeba Central first debentures were firmer. San Paulo responded to the maintenance of the dividend at  $2\frac{1}{2}$  per cent. tax free. The improved currency position drew more attention to Antofagasta and Taltal were also better. There was a fairly general reaction in American railroad stocks in sympathy with the trend in New York market conditions. Canadian Pacific ordinary and preference also made lower prices.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1935-36	Week Ending	Traffics for Week		No. of Weeks	Aggregate Traffics to Date		Shares or Stock	Prices					
			Total this year	Inc. or Dec. compared with 1935		Totals			Highest 1935	Lowest 1935	Apr. 22, 1936			
						This Year	Last Year					Yield $\frac{1}{2}$ (See Note)		
Antofagasta (Chili) & Bolivia	834	19.4.36	£12,290	+	16	£215,590	£195,820	+	£19,770	Ord. Stk.	23	141516	22 $\frac{1}{2}$ Nil	
Argentine North Eastern	753	18.4.36	8,684	+	42	327,574	304,617	+	22,957	A. Deb.	7	4	41 $\frac{1}{2}$ Nil	
Argentine Transandine										6 p.c. Deb. Bonds.	49 $\frac{1}{2}$	30	47 $\frac{1}{2}$ 87 $\frac{1}{2}$ Nil	
Bolivar	174	Mar., 1936	7,600	+	500	13	19,750	19,550	+	200	10 $\frac{1}{2}$	5	10 Nil	
Brazil										14	11	14	39 $\frac{1}{2}$ Nil	
Buenos Ayres & Pacific	2,806	18.4.36	103,231	+	274	42	3,514,728	3,244,077	+	270,651	Ord. Stk.	101 $\frac{1}{2}$	81 $\frac{1}{2}$	81 $\frac{1}{2}$ Nil
Buenos Ayres Central	190	28.3.36	878,400	-	200,300	39	£4,345,200	£4,310,400	+	£34,800	Mt. Deb.	21	10	17 $\frac{1}{2}$ Nil
Buenos Ayres Gt. Southern	5,084	18.4.36	139,835	-	7,829	42	5,525,361	6,087,888	-	562,527	Ord. Stk.	27	131 $\frac{1}{2}$	171 $\frac{1}{2}$ Nil
Buenos Ayres Western	1,930	18.4.36	52,409	+	6,282	42	1,887,453	1,875,926	+	11,527	24	10	131 $\frac{1}{2}$ Nil	
Central Argentine	3,700	18.4.36	112,347	-	26,461	42	5,031,362	5,016,980	+	14,382	17 $\frac{1}{2}$	7	10 $\frac{1}{2}$ Nil	
Do.										Dif.	9	31 $\frac{1}{2}$	61 $\frac{1}{2}$ Nil	
Cent. Uruguay of M. Video	273	11.4.36	11,280	+	470	41	449,776	573,261	-	121,485	Ord. Stk.	81 $\frac{1}{2}$	3	6 Nil
Do. Eastern Extn.	311	11.4.36	1,721	-	471	41	82,359	78,537	+	3,822	—	—	—	
Do. Northern Extn.	185	11.4.36	1,311	-	51	41	57,879	43,878	+	14,001	—	—	—	
Do. Western Extn.	211	11.4.36	764	+	172	41	36,086	32,099	+	3,987	—	—	—	
Cordoba Central	1,218	18.4.36	23,560	+	1,210	42	1,173,470	1,181,370	-	7,900	Ord. Inc.	4	1	21 $\frac{1}{2}$ Nil
Costa Rica	188	Feb., 1936	14,640	-	562	35	106,919	131,069	-	24,150	Stk.	35	30	36 59 $\frac{1}{2}$ Nil
Dorada	70	Mar., 1936	12,900	+	1,000	13	38,500	33,400	+	5,100	1 Mt. Db.	103 $\frac{1}{2}$	102 $\frac{1}{2}$	104 $\frac{1}{2}$ 5 $\frac{1}{2}$ Nil
Entre Rios	810	18.4.36	9,894	-	479	42	452,336	516,098	-	63,762	Ord. Stk.	15	6 $\frac{1}{2}$	9 Nil
Great Western of Brazil	1,082	18.4.36	7,000	+	1,000	16	146,800	156,400	-	9,600	Ord. Sh.	1 $\frac{1}{2}$	5 $\frac{1}{2}$	1 $\frac{1}{2}$ Nil
International of Cl. Amer.	794	Feb., 1936	8491,759	+	882,680	9	£993,293	£838,555	+	£154,743	1st Pref. Stk.	1 $\frac{1}{2}$	5 $\frac{1}{2}$	1 $\frac{1}{2}$ Nil
Interoceanic of Mexico										81 $\frac{1}{2}$	81 $\frac{1}{2}$	81 $\frac{1}{2}$ Nil		
La Guaira & Caracas	22 $\frac{1}{4}$	Mar., 1936	4,310	+	270	13	12,960	10,540	+	2,420	1st Pref. Stk.	8 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$ Nil
Leopoldina	1,918	18.4.36	14,473	+	3,024	16	286,388	275,069	+	11,319	Ord. Stk.	81 $\frac{1}{2}$	21 $\frac{1}{2}$	7 Nil
Mexican	483	14.4.36	8276,700	-	288,100	15	£3,833,000	£3,560,000	+	£278,000	—	1 $\frac{1}{2}$	4 $\frac{1}{2}$	5 $\frac{1}{2}$ Nil
Midland of Uruguay	319	Mar., 1936	7,747	+	1,449	39	64,059	91,386	-	27,327	—	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$ Nil
Nitrate	401	15.4.36	4,143	-	2,661	15	48,608	41,922	+	6,686	Ord. Sh.	64 $\frac{1}{2}$	42 $\frac{1}{2}$	2 $\frac{1}{2}$ Nil
Paraguay Central	274	11.4.36	82,581,000	+	8968,000	41	£86,925,000	£84,820,000	+	£42,105,000	Pr. Li. Stk.	80 $\frac{1}{2}$	60	77 71 $\frac{1}{2}$ Nil
Peruvian Corporation	1,059	Mar., 1936	87,170	+	29,660	39	703,226	557,156	+	14,070	Pref. Stk.	10 $\frac{1}{2}$	6 $\frac{1}{2}$	13 Nil
Salvador	100	18.4.36	22,900	+	650	42	482,246	881,452	-	55,206	Pr. Li. Db.	65	61	65 71 $\frac{1}{2}$ Nil
San Paulo	153 $\frac{1}{2}$	12.4.36	22,750	+	472	15	425,158	332,536	+	92,622	Ord. Stk.	80	35	55 $\frac{1}{2}$ 41 $\frac{1}{2}$ Nil
Taltal	164	Mar., 1936	4,265	+	472	39	32,750	26,885	+	5,865	Ord. Stk.	111 $\frac{1}{2}$	11 $\frac{1}{2}$	1 10 Nil
United of Havana	1,353	18.4.36	26,127	+	1,709	42	972,006	985,201	-	13,195	Ord. Stk.	31 $\frac{1}{2}$	1	3 Nil
Uruguay Northern	73	Mar., 1936	921	+	93	39	7,288	9,835	-	2,547	Deb. Stk.	41 $\frac{1}{2}$	215 $\frac{1}{2}$	41 $\frac{1}{2}$ Nil
Canadian National	23,663	14.4.36	640,750	+	8,885	15	9,368,491	8,936,951	+	431,540	—	—	—	
Canadian Northern										4 p.c. Gar.	78 $\frac{1}{2}$	52 $\frac{1}{2}$	68 57 $\frac{1}{2}$ Nil	
Grand Trunk										4 p.c. Gar.	103 $\frac{1}{2}$	93	102 $\frac{1}{2}$ 2 $\frac{1}{2}$ Nil	
Canadian Pacific	17,244	14.4.36	494,800	+	37,000	15	6,854,600	6,200,000	+	654,600	Ord. Stk.	141 $\frac{1}{2}$	85 $\frac{1}{2}$	121 $\frac{1}{2}$ Nil
Assam Bengal	1,329	31.3.36	39,390	+	4,827	52	1,268,989	1,419,915	-	150,926	Ord. Stk.	92 $\frac{1}{2}$	77 $\frac{1}{2}$	85 $\frac{1}{2}$ 31 $\frac{1}{2}$ Nil
Barsi Light	202	31.3.36	5,580	+	2,648	52	143,572	135,772	+	7,800	Ord. Sh.	105	77 $\frac{1}{2}$	72 $\frac{1}{2}$ 67 $\frac{1}{2}$ Nil
Bengal & North Western	2,112	31.3.36	97,856	+	17,041	52	1,426,322	1,379,773	+	46,549	Ord. Stk.	301 $\frac{1}{2}$	291	305 $\frac{1}{2}$ 51 $\frac{1}{2}$ Nil
Bengal Doars & Extension	161	20.3.36	3,208	-	357	51	134,984	150,890	-	15,906	127 $\frac{1}{2}$	122	123 $\frac{1}{2}$ 59 $\frac{1}{2}$ Nil	
Bengal-Nagpur	3,268	10.3.36	188,550	-	5,457	49	6,075,822	5,659,768	+	416,054	—	105	100 $\frac{1}{2}$	102 $\frac{1}{2}$ 37 $\frac{1}{2}$ Nil
Bombay, Baroda & Cl. India	3,072	10.4.36	280,575	+	47,700	1	280,575	232,875	+	47,700	—	115 $\frac{1}{2}$	110	112 $\frac{1}{2}$ 55 $\frac{1}{2}$ Nil
Madras & Southern Mahratta	3,230	31.3.36	171,225	+	10,221	52	5,393,528	5,541,894	+	146,366	128 $\frac{1}{2}$	113 $\frac{1}{2}$	115 $\frac{1}{2}$ 7 $\frac{1}{2}$ Nil	
Rohilkund & Kumaon	572	31.3.36	22,502	+	3,039	52	286,320	282,954	+	3,366	—	294	262	299 $\frac{1}{2}$ 55 $\frac{1}{2}$ Nil
South India	2,531	20.3.36	108,847	-	5,438	51	3,806,622	4,015,961	-	209,339	—	119 $\frac{1}{2}$	104 $\frac{1}{2}$	106 $\frac{1}{2}$ 7 $\frac{1}{2}$ Nil
Beira-Umtali	204	Feb., 1936	61,814	+	2,183	21	316,206	305,135	+	11,071	—	—	—	—
Bilbao River & Cantabrian	15	Mar., 1936	1,207	-	610	13	4,677	6,128	-	1,451	—	—	—	—
Egyptian Delta	622	31.3.36	6,446	+	702	52	250,757	239,731	+	11,026	Prf. Sh.	2	15 $\frac{1}{2}$	15 $\frac{1}{2}$ Nil
Great Southern of Spain	104	11.4.36	790	-	1,556	15	16,930	28,557	-	11,627	Inc. Deb.	31 $\frac{1}{2}$	2	31 $\frac{1}{2}$ Nil
Kenya & Uganda	1,625	Feb., 1936	245,527	+	26,405	9	478,026	459,598	+	18,428	—	—	—	—
Manila										B. Deb.	48	36	46 $\frac{1}{2}$ 7 $\frac{1}{2}$ Nil	
Mashonaland	913	Feb., 1936	98,894	-	6,317	21	509,798	569,259	-	59,461	1 Mg. Db.	104 $\frac{1}{2}$	100	103 $\frac{1}{2}$ 47 $\frac{1}{2}$ Nil
Midland of W. Australia	277	Feb., 1936	13,498	+	2,402	35	111,949	110,221	+	1,728	Inc. Deb.	98 $\frac{1}{2}$	93	94 $\frac{1}{2}$ 58 $\frac{1}{2}$ Nil
Nigerian	1,905	7.3.36	31,650	-	1,176	21	1,807,928	1,988,657	+	80,729	—	—	—	—
Rhodesia	1,538	Feb., 1936	179,001	-	769	21	935,446	932,189	+	3,257	4 p.c. Db.	105 $\frac{1}{2}$	101	105 31 $\frac{1}{2}$ Nil
South African	13,250	28.3.36	579,434	+	64,025	52	28,770,971	26,900,941	+	2,870,030	—	—	—	—
Victoria	4,728	Dec., 1935	866,995	-	3,320	26	4,826,292	4,751,974	+	74,318	—	—	—	—
Zafra & Huelva	112	Feb., 1936	10,741	+	219	9	21,230	21,904	-	674	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1 $\frac{1}{2}$ .

† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. Salvador and Paraguay Central receipts are in currency.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements from July 1 onwards are based on the current rates of exchange and not on the par value.

## FINANCIAL AND OPERATING RESULTS OF THE BRITISH GROUP RAILWAYS IN 1935

*An analysis of the accounts and statistics as shown in the published reports for the past year*

THE accompanying tables and notes are compiled from the published accounts and statistics of the railway companies as set out in their annual reports. It is possible that differences in organisation, or in methods of working, or in the nature of the traffic dealt with, limit the extent to which comparisons can be made between one railway company and another, and this point should be borne in mind in perusing the tables and the notes relating thereto. In arranging the tables, however, every endeavour has been made to set out the figures in such a way as to afford a fair comparison between the companies, but for the reason already given it may not always be possible to compare results between one company and another in the various units of measurement adopted.

1935 in some respects resembles 1933 rather than 1934, in that the first half of the year gave rise to some anxiety as regards revenue, the published figures of the four companies at the end of the twenty-sixth week showing an increase in railway receipts of only £359,000. At the end of the year the returns were distinctly better, and the gross receipts from all businesses showed an improvement of nearly £2,600,000 upon the figures of 1934, the railway side contributing rather more than £2,000,000 of this amount. True, the increase in the latter part of the year was due to some extent to apprehension of a coal strike throughout the country, which has been happily averted, and it does not compare favourably with the advance in 1934 over 1933, but unlike the commencement of last year the returns for 1936 are distinctly good and for the first 15 weeks of the year show an increase of £1,509,000 upon 1935, notwithstanding the fact that passenger travel has been adversely affected by the very unfavourable weather conditions. It should also be noted that the chairmen of the companies at the annual meetings have on the whole expressed optimistic feelings in regard to industrial prospects.

Last year was marked with a red letter so far as the Great Western company is concerned, in that it celebrated its centenary on August 31, 1935. Shortly after that date it inaugurated a new service between London and Bristol, performing the journey of 118 miles in 1 $\frac{1}{4}$  hr., a reduction of 15 min. on the previous best timing. Two new trains have also been constructed for the Cornish Riviera service.

The Silver Jubilee of the L.N.E.R., referred to in these notes a year ago, began to run on September 30 between Newcastle and London, the distance of just over 268 miles being performed in exactly four hours. A streamlined train of seven articulated vehicles weighing 220 tons, with seats for 78 first and 120 third class passengers, and painted silver grey in colour, was built specially for the purpose, together with four locomotives of the Pacific type each weighing 165 tons and also painted silver grey and named *Silver Link*, *Quicksilver*, *Silver King*, and *Silver Fox*. The train has been an outstanding success and has attracted world-wide attention. On a trial run made on September 27, a maximum speed of 112 m.p.h. was obtained, and for a distance of 27 miles between Hitchin and Huntingdon the speed averaged 104.9 m.p.h. More speeding up, especially in East Anglia, is promised in 1936.

The reduction made by all companies in first class fares as from January 1, 1935, has been fully justified and additions are to be made to the number of camping coaches, which have proved very popular. The reduction in parcel post rates brought into operation by the Government on July 1 has had an adverse effect upon the railway companies' parcels receipts, and modified charges have been

introduced to meet the competition. On the freight side it is stated that the system of agreed charges is operating successfully. So great has been the success of the Green Arrow service for goods traffic that a Blue Arrow service for passenger train traffic was inaugurated on January 1, 1936.

The three companies which were operating air services in 1934 continued working in 1935 but the matter must still be regarded as in the experimental stage.

The Southern Railway extended its electrified lines to Newhaven, Seaford, Eastbourne and Hastings on July 7, and is continuing to Portsmouth and Chatham and from Sevenoaks to Hastings. The passenger and cargo shed accommodation at the Southampton docks extension has been completed. The L.N.E.R. has opened new marshalling yards at Hull, and at Mottram, between Sheffield and Manchester.

On the expenditure side the partial restoration of the wages cuts from the beginning of last year made a very large addition to the payrolls. A further request for the complete restoration of the cuts is now under the consideration of the companies. New negotiating machinery came into operation on March 1, 1935.

Road competition is as severe as ever, and the substitution by the companies of motors for horses is continuing. The Southern company has had to close down some of its unremunerative branches, including the well-known narrow gauge Lynton & Barnstaple line.

The House of Lords decision on the Southern Railway rating case has been entirely favourable to the railway companies, which are now entitled to the repayment of large sums of money covering the past five years. The L.M.S.R. has taken credit for £885,000 in this respect in the 1935 accounts, and the Southern Railway £250,000, but the other two companies have adopted a more conservative attitude.

The Railways (Agreement) Act, 1935, confirmed an agreement entered into with the Government on November 30, 1935, and provided for the formation of a Railway Finance Corporation to finance, under Treasury guarantee, various new railway works. A loan of £27,000,000 guaranteed by the Government as to principal and interest has been issued bearing interest at the rate of 2 $\frac{1}{2}$  per cent., repayable within a period of 15 to 16 years, each company undertaking, if called upon, to issue debenture stock as collateral security for its share. Many improvements will be undertaken by all the companies which would otherwise have had to remain in abeyance. These include the reconstruction of Euston station and the electrification of the Wirral section of the L.M.S.R., the electrification of some of the G.E. and G.N. suburban lines by the L.N.E.R., together with the provision of further accommodation for landing and marketing fish at Grimsby, the extension of the fish docks at Hull, electrification of the line between Sheffield and Manchester, the extension of York and Doncaster stations, and the installation of colour-light signalling for a distance of 120 miles. The Great Western company has in contemplation the electrification of the line from North Acton to Ruislip and the making of an alternative line between Dawlish and Newton Abbot which will avoid the coast, and of a new railway from St. Germans to Looe. The Southern company is borrowing £6,000,000 and intends to construct a new line from Motspur Park to Leatherhead, to continue its policy of electrification, and improve certain of its stations. Confidence

in the future of the railways seems therefore to be abundantly justified.

**Tables I and II.—Capital Expenditure**

Turning to the accounts themselves, it will be seen from Table I that the aggregate capital expenditure now amounts to nearly £1,156,000,000, over £2,250,000 having been added during the year. The net expenditure of the L.M.S.R. on capital account was only a modest £288,000, but the gross expenditure was £1,000,000 more than this amount, credits being taken in respect of £372,000 for land and property sold, £213,000 for the Northern Counties Committee (Ireland),

and £278,000 for locomotive and carriage and wagon workshops. The actual expenditure included £232,000 on engine sheds, £110,000 on sidings, £73,000 on locomotives, £163,000 on carriages, and £429,000 on wagons. The L.N.E.R. actually spent only £220,000 as compared with £820,000 forecast a year ago, but here again there were credits to capital of £370,000, consisting of £166,000 for land sales, £129,000 under subscriptions to other undertakings, and £47,000 for two steamboats displaced. The net expenditure on way and works was £146,000, on rolling stock £55,000,

(Text continued on page 822)

**Table 1—Aggregate Capital Expenditure to December 31, Years 1934 and 1935**

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935 £	1934. £	1935 £	1934. £	1935 £	1934. £	1935 £	1934. £
<b>LINES OPEN FOR TRAFFIC—</b>								
Capital expended	316,291,578	315,346,374	235,820,632	235,674,870	124,865,164	124,610,280	121,895,318	120,981,766
Miles of railway open for traffic (per Statistical Return 1A)	6,934	6,941	6,364	6,369	3,783	3,785	2,138	2,156
Average per mile	£45,615	£45,432	£37,055	£37,003	£33,007	£32,922	£57,014	£56,114
Lines not open for traffic	123,257	123,257	115,070	115,070	15,098	15,755	105,661	85,288
Lines leased and lines jointly leased other than "J" joint lines	—	—	—	—	10,281	10,337	26,591	26,591
Rolling-stock	59,433,204	58,888,090	46,987,982	46,933,040	21,209,073	21,123,081	17,284,485	17,284,485
Manufacturing and repairing works and plant	8,963,529	9,723,545	6,277,179	6,168,022	4,241,373	4,226,210	2,435,912	2,436,812
Total capital expended upon railway	384,811,568	384,081,266	289,200,863	288,891,002	150,340,989	149,985,663	141,747,967	140,814,942
Road vehicles	1,355,382	1,331,158	1,229,751	1,173,517	1,100,909	1,073,474	167,608	167,608
Horses	—	—	—	—	85,309	90,030	36,647	36,647
Garages, stables, &c.	1,636,842	1,542,477	619,974	630,620	251,628	250,399	168,474	168,474
Steamboats	2,919,022	2,928,373	2,970,333	2,965,431	414,965	414,965	2,937,322	2,843,457
Canals	6,010,227	6,004,328	1,308,858	1,310,204	753,561	753,739	77,700	77,700
Docks, harbours and wharves	10,081,289	10,050,636	26,028,924	25,949,002	21,094,010	21,145,633	13,573,854	13,183,981
Hotels	5,303,328	5,317,759	2,728,516	2,697,753	288,632	209,767	1,388,223	1,388,223
Electric power stations, &c.	1,675,559	1,671,793	250,780	249,690	516,804	516,949	688,892	688,892
Land, property, &c., not forming part of the railway or stations	14,641,941	15,019,318	11,576,548	11,712,395	3,184,472	3,171,538	5,684,088	5,739,914
Lines leased (Abstract "J")	262,053	262,984	345,253	347,159	—	—	—	—
Lines jointly owned (Abstract "J")	6,763,295	6,763,633	10,467,087	10,473,738	319,057	319,086	335,870	335,781
Subscriptions to other companies	11,210,698	11,198,503	3,975,376	4,083,107	4,520,566	4,552,213	545,740	545,726
Special items—								
Northern Counties Railway, Ireland	5,917,780	6,130,561	—	—	—	—	—	—
County Donegal Railways Joint Committee	163,302	161,183	—	—	—	—	—	—
Stamp duty on capital	84,195	84,195	173,249	171,488	62,878	62,878	72,929	72,929
East London Railway Electrification	—	—	83,215	83,215	—	—	—	—
London Passenger Transport Board	—	—	584,970	584,970	—	—	—	—
Twenty-ton wagons	—	—	—	—	1,130,325	1,130,325	—	—
Parliamentary expenses	6,611	6,611	10,450	10,450	8,533	8,533	—	—
<b>TOTAL CAPITAL EXPENDITURE</b>	£452,843,092	£452,554,778	£351,554,147	£351,333,741	£184,072,638	£183,685,192	£167,425,314	£166,064,274

Table 2—Annual Capital Expenditure to December 31, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935 £	1934 £	1935 £	1934 £	1935 £	1934 £	1935 £	1934 £
LINES OPEN FOR TRAFFIC—								
Land and compensation	15,015	Cr. 8,008	Cr. 4,089	Cr. 1,334	Cr. 2,037	Cr. 47,958 401	Cr. 10,967	Cr. 13,342
Construction of way and stations, engineering, &c.	466,755	391,398	138,176	84,512	256,358	319,	924,267	664,538
Law charges and Parliamentary expenses	Cr. 797	1,944	1,802	4,198	562	934	252	766
Transfers	464,231	170,059	9,872	200,964	—	—	—	—
Total	945,204	555,393	145,761	288,340	254,883	272,377	913,552	651,962
LINES NOT OPEN FOR TRAFFIC—								
Land and compensation	—	—	—	28	Cr. 656	Cr. 248	17,587	14,052
Construction of way and stations, engineering, &c.	—	—	—	10,429	—	—	1,619	626
Law charges and Parliamentary expenses	—	—	—	34	—	—	1,167	499
Transfers	—	—	—	Cr. 70,402	—	—	—	—
Total	—	—	—	Cr. 59,911	Cr. 656	Cr. 248	20,373	15,177
Lines leased and lines jointly leased (other than "J" joint lines)—Total	—	—	—	—	Cr. 56	—	—	—
ROLLING-STOCK—								
Locomotives	73,592	Cr. 594,804	1,098	729	—	—	—	—
Rail motor vehicles	Cr. 64,413	Cr. 5,874	Cr. 2,105	7,017	14,700	22,349	—	—
Carriages	162,825	458,911	14,786	19,591	65,229	—	—	—
Wagons and vans	428,909	Cr. 542,279	26,229	22,393	6,063	11,553	—	—
Service vehicles	Cr. 5,659	Cr. 173,788	14,934	9,766	—	—	—	—
Transfers	Cr. 50,140	—	—	—	—	—	—	—
Total	545,114	Cr. 857,834	54,942	59,496	85,992	33,902	—	—
MANUFACTURING AND REPAIRING WORKS AND PLANT—								
Land and buildings	—	—	Cr. 4,011	14,121	10,450	Cr. 19,709	—	Cr. 456
Plant and machinery	—	—	113,169	74,116	4,713	Cr. 14,327	—	Cr. 312
Total	Cr. 760,016	Cr. 185,777	109,158	88,237	15,163	Cr. 34,036	Cr. 899	Cr. 768
Total capital expended upon railway	730,302	Cr. 488,218	309,861	376,162	355,326	271,995	933,026	666,371
Horses	—	—	—	—	Cr. 4,722	Cr. 1,318	—	—
Road vehicles	24,224	52,413	56,234	138,834	27,435	71,558	—	6,263
Garages, stables, &c.	94,365	33,293	Cr. 10,647	7,346	1,230	6,875	—	—
Steamboats	Cr. 9,351	Cr. 93,608	4,902	Cr. 1,974	—	—	93,865	—
Canals	5,899	2,679	Cr. 1,346	Cr. 163	Cr. 178	Cr. 18,384	—	—
Docks, harbours and wharves	30,653	Cr. 53,924	79,923	501,976	Cr. 51,623	Cr. 7,755	389,872	557,512
Hotels	Cr. 14,431	Cr. 1,060	30,763	24,990	78,865	25,169	—	—
Electric power, stations, &c.	3,767	Cr. 102,174	1,089	Cr. 365	Cr. 145	30	—	—
Limestone quarry	—	Cr. 43,335	—	—	—	—	—	—
Land, property, &c., not forming part of the railway or stations	Cr. 377,378	Cr. 149,169	Cr. 135,847	Cr. 326,772	12,934	15,296	Cr. 55,825	Cr. 48,037
Lines leased—Total	Cr. 931	Cr. 727	Cr. 1,907	Cr. 580	—	—	—	—
Lines jointly owned—Total	Cr. 338	Cr. 12,797	Cr. 6,650	Cr. 19,245	Cr. 28	Cr. 523	89	Cr. 70
Subscriptions to other companies	12,195	409,060	Cr. 107,730	556,741	Cr. 31,648	485,584	13	545,726
Stamp duty on capital	—	—	1,761	—	—	—	—	—
Northern Counties Railway	Cr. 212,781	28,116	—	—	—	—	—	—
County Donegal Railways Joint Committee	2,120	—	—	—	—	—	—	—
Twenty-ton wagons	—	—	—	—	—	332,096	—	—
TOTAL CAPITAL EXPENDITURE...	288,315	Cr. 419,451	220,406	1,256,950	387,446	1,180,623	1,361,040	1,727,765

Table 3—Revenue Receipts and Expenditure of the whole undertaking, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
<b>RAILWAY—</b>								
<i>Gross Receipts (per Account No. 10)</i>	1935 £61,658,170	1934 £60,571,587	1935 £45,145,649	1934 £44,913,974	1935 £25,738,314	1934 £25,289,629	1935 £20,647,676	1934 £20,368,894
Per cent. on capital expended	16.02	15.77	15.61	15.55	17.12	16.86	14.57	14.47
<i>Expenditure (per Account No. 10)</i>	£49,521,464	£49,563,211	£37,156,391	£36,932,444	£20,760,062	£20,350,476	£16,093,177	£16,070,479
Per cent. of gross receipts ....	80.32	81.83	82.30	82.23	80.66	80.47	77.94	78.90
<i>Net receipts (per Account No. 10)</i>	£12,136,706	£11,008,376	£7,989,258	£7,981,530	£4,978,252	£4,939,153	£4,554,499	£4,298,415
Per cent. on capital expended	3.15	2.87	2.76	2.76	3.31	3.29	3.21	3.05
<b>ROAD TRANSPORT—</b>								
<i>Gross receipts (per Account No. 11)</i>	£368,536	£349,460	£182,195	£171,123	£71,852	£67,658	£23,263	£21,156
<i>Expenditure (per Account No. 11)</i>	£309,133	£290,751	£152,538	£144,350	£65,489	£56,574	£16,427	£14,865
Per cent. of gross receipts ....	83.88	83.20	83.72	84.35	91.14	83.62	70.61	70.26
<i>Net receipts or expenditure (per Account No. 11)</i>	£59,403	£58,709	£29,657	£26,773	£6,363	£11,084	£6,836	£6,291
<b>STEAMBOATS—</b>								
<i>Gross receipts (per Account No. 12)</i>	£1,397,103	£1,321,841	£751,434	£699,871	£318,414	£304,731	£1,106,178	£1,124,369
Per cent. on capital expended	47.86	45.14	25.30	23.60	76.73	73.44	37.66	39.54
<i>Expenditure (per Account No. 12)</i>	£1,136,651	£1,093,264	£795,908	£797,409	£301,084	£298,665	£998,943	£1,002,140
Per cent. of gross receipts ....	81.36	82.71	105.92	113.94	94.56	98.01	90.30	89.13
<i>Net receipts or expenditure (per Account No. 12)</i>	£260,452	£228,577	loss £44,474	loss £97,538	£17,330	£6,066	£107,235	£122,229
Per cent. on capital expended	8.92	7.81	—	—	4.18	1.46	3.65	4.30
<b>CANALS—</b>								
<i>Gross receipts (per Account No. 13)</i>	£117,740	£124,812	£37,067	£36,052	£13,894	£14,094	£1,890	£1,601
Per cent. on capital expended	1.96	2.08	2.83	2.75	1.84	1.87	2.43	2.06
<i>Expenditure (per Account No. 13)</i>	£134,722	£126,200	£51,203	£45,707	£32,604	£37,373	£1,515	£1,244
Per cent. of gross receipts ....	114	101	138	127	235	265	80	78
<i>Net receipts or expenditure (per Account No. 13)</i>	loss £16,982	loss £1,388	loss £14,136	loss £9,655	loss £18,710	loss £23,279	£375	£357
Per cent. on capital expended	—	—	—	—	—	—	0.48	0.46
<b>DOCKS, HARBOURS AND WHARVES—</b>								
<i>Gross receipts (per Account No. 14)</i>	£905,569	£871,806	£2,655,566	£2,647,193	£1,947,783	£1,974,026	£1,099,984	£1,035,228
Per cent. on capital expended	8.98	8.67	10.20	10.20	9.23	9.34	8.10	7.85
<i>Expenditure (per Account No. 14)</i>	£890,735	£886,165	£2,540,750	£2,495,851	£1,901,100	£1,885,133	£769,974	£743,883
Per cent. of gross receipts ....	98.36	101.65	95.68	94.28	97.60	95.50	70.00	71.86
<i>Net receipts (per Account No. 14)</i>	£14,834	loss £14,359	£114,816	£151,342	£46,683	£88,803	£330,010	£291,345
Per cent. on capital expended	0.15	—	0.44	0.58	0.22	0.42	2.43	2.21
<b>HOTELS AND REFRESHMENT ROOMS AND CARS WHERE CATERING IS CARRIED ON BY THE COMPANY—</b>								
<i>Gross receipts (per Account No. 15)</i>	£2,861,859	£2,833,028	£1,839,018	£1,756,465	£699,457	£666,849	£128,923	£108,772
Per cent. on capital expended	53.96	53.27	67.40	65.11	242	318	9.29	7.84
<i>Expenditure (per Account No. 15)</i>	£2,482,242	£2,469,853	£1,714,727	£1,631,140	£620,871	£591,381	£123,188	£112,121
Per cent. of gross receipts ....	86.73	87.18	93.24	92.86	88.76	88.68	95.57	103.05
<i>Net receipts (per Account No. 15)</i>	£379,617	£363,175	£124,291	£125,325	£78,586	£75,468	£5,735	loss £3,349
Per cent. on capital expended	7.16	6.83	4.56	4.65	27	36	0.41	—

*(Continued on next page)*

Table 3—Revenue Receipts and Expenditure of the whole undertaking, Years 1934 and 1935—Continued

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
COLLECTION AND DELIVERY OF PARCELS AND GOODS—	1935	1934	1935	1934	1935	1934	1935	1934
<i>Gross Receipts (per Account No. 16)</i>	£2,133,640	£2,096,272	£1,208,005	£1,151,577	£996,725	£961,867	£507,914	£492,457
<i>Expenditure (per Account No. 16)</i>	£2,528,785	£2,478,978	£1,533,749	£1,474,267	£1,127,277	£1,085,101	£462,990	£449,601
Per cent. of gross receipts	118.52	118.25	126.97	128.02	113.10	112.81	91.16	91.29
<i>Net receipts (per account No. 16)</i>	loss £395,145	loss £382,706	loss £325,744	loss £322,690	loss £130,552	loss £123,234	£44,924	£42,856
AIR TRANSPORT—								
<i>Gross receipts (per Account No. 19)</i>	£12,626	£2,904	—	—	£2,183	£1,528	£1,196	£272
<i>Expenditure (per Account No. 19)</i>	£39,902	£10,148	—	—	£9,117	£6,678	£10,184	£5,042
Per cent. of gross receipts	316	349	—	—	418	437	852	1,854
<i>Loss (per Account No. 17)</i>	loss £27,276	loss £7,244	—	—	loss £6,934	loss £5,150	loss £8,988	loss £4,770
CAPITAL EXPENDED	....	£452,843,092	£452,554,778	£351,554,147	£351,333,741	£184,072,638	£183,685,192	£167,425,314
TOTAL—								
<i>Gross receipts (per Account No. 8)</i>	£69,455,245	£68,180,325	£51,818,934	£51,376,257	£29,788,622	£29,280,382	£23,517,026	£23,152,749
Per cent. on capital expended	15.34	15.07	14.74	14.62	16.18	15.94	14.05	13.94
<i>Expenditure (per Account No. 8)</i>	£57,043,635	£56,924,563	£43,945,267	£43,521,169	£24,817,604	£24,311,381	£18,476,400	£18,399,375
Per cent. of gross receipts	82.13	83.49	84.81	84.71	83.31	83.03	78.57	79.47
<i>Net receipts (per Account No. 8)</i>	£12,411,610	£11,255,762	£7,873,667	£7,855,088	£4,971,018	£4,969,001	£5,040,626	£4,753,374
Per cent. on capital expended	2.74	2.49	2.24	2.24	2.70	2.71	3.01	2.86

Table 4—Receipts in Respect of Railway Working (per Account No. 10), Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
PASSENGER TRAIN TRAFFIC—	1935	1934	1935	1934	1935	1934	1935	1934
<i>Passengers, including season and workmen's tickets</i>	£18,662,658	£18,236,722	£12,135,172	£11,803,321	£7,812,446	£7,603,839	£13,387,487	£12,917,221
Per cent. of traffic receipts	30.55	30.41	27.10	26.50	30.63	30.33	65.60	64.16
<i>Mails, parcels under 2 cwt., parcels post excess luggage, and other merchandise, per passenger train</i>	£6,479,717	£6,503,243	£4,331,095	£4,357,914	£2,897,258	£2,965,301	£2,238,878	£2,247,029
Per cent. of traffic receipts	10.61	10.84	9.67	9.79	11.36	11.83	10.97	11.16
<i>Total passenger train receipts</i>	£25,142,375	£24,739,965	£16,466,267	£16,161,235	£10,709,704	£10,569,140	£15,626,365	£15,164,250
Per cent. of traffic receipts	41.16	41.25	36.77	36.29	41.99	42.16	76.57	75.32
GOODS TRAIN TRAFFIC—								
<i>Merchandise (excluding classes 1-6)</i>	£17,513,346	£17,320,421	£11,634,123	£11,540,728	£7,048,841	£6,885,429	£2,432,181	£2,534,020
Per cent. of traffic receipts	28.68	28.88	25.98	25.91	27.64	27.47	11.92	12.59
<i>Minerals and merchandise (Classes 1-6)</i>	£5,498,158	£5,308,221	£4,498,424	£4,574,763	£2,228,813	£2,221,608	£692,725	£751,944
Per cent. of traffic receipts	9.01	8.85	10.04	10.27	8.74	8.86	3.39	3.73
<i>Coal, coke and patent fuel</i>	£12,327,875	£12,039,242	£11,817,328	£11,904,947	£5,279,986	£5,192,238	£1,594,259	£1,617,712
Per cent. of traffic receipts	20.19	20.07	26.39	26.73	20.70	20.71	7.81	8.04
<i>Live Stock</i>	£578,273	£567,712	£368,427	£356,815	£236,522	£201,020	£63,597	£64,000
Per cent. of traffic receipts	0.96	0.95	0.82	0.80	0.93	0.80	0.31	0.32
<i>Total goods train receipts</i>	£35,917,652	£35,235,596	£28,318,302	£28,377,253	£14,794,162	£14,500,385	£4,782,762	£4,967,676
Per cent. of traffic receipts	58.64	58.75	63.23	63.71	58.01	57.84	23.43	24.68
<b>TOTAL TRAFFIC RECEIPTS</b>	£61,060,027	£59,975,561	£44,784,569	£44,538,488	£25,503,866	£25,069,525	£20,409,127	£20,131,926
<i>Miscellaneous</i>	£598,143	£596,026	£361,080	£375,487	£234,448	£220,104	£238,550	£236,968
<b>TOTAL RECEIPTS IN RESPECT OF RAILWAY WORKING</b>	£61,658,170	£60,571,587	£45,145,649	£44,913,975	£25,738,314	£25,289,629	£20,647,677	£20,368,894

*(Continued from page 818)*

on plant and machinery £113,000, road vehicles £54,000, docks £80,000, and hotels £31,000. The new steamboat *Talisman* for the Clyde service cost £50,000. The G.W.R. practically incurred the expenditure anticipated, which included nearly £120,000 on station improvements at Bristol, £86,000 on rolling stock, and nearly £80,000 on hotels. Credits are taken for £51,000 in respect of docks, £22,000 for sale of land, and £32,000 (net) for subscriptions to other

undertakings. A year ago the Southern anticipated an expenditure of £1,340,000 in 1935 and actually spent £1,360,000. Electrification of lines cost £622,000, additional station and siding accommodation £337,000, train ferry vessels £94,000, and Southampton docks £390,000. Credit is taken for £34,000 for disused and displaced capital works, and £70,000 for land and property sales.

As regards prospective capital expenditure in 1936, only the L.M.S. and Southern companies included amounts under the Railways (Agreement) Act, 1935, and comparative figures

Table 5—Number of and Receipts from Passengers and Average Receipt per Passenger, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
<b>ORDINARY PASSENGERS—</b>								
<i>First class—</i>								
Number	3,740,912	3,391,324	2,581,739	2,311,144	1,052,992	904,146	4,065,938	3,525,176
Receipts	£1,162,885	£1,098,210	£759,627	£710,165	£461,515	£421,483	£821,777	£773,862
Average per passenger	6/2·61	6/5·72	5/10·62	6/1·75	8/9·19	9/3·88	4/0·51	4·4·69
<i>Second class—</i>								
Number	8,636	8,516	1,159,797	1,191,097	—	—	383,437	374,885
Receipts	£110	£124	£86,531	£94,296	—	—	£281,217	£277,768
Average per passenger	3·06d.	3·49d.	1/5·91	1/7·00	—	—	14/8·02	14·9·83
<i>Third class—</i>								
Number	226,101,658	216,330,539	153,645,560	147,001,092	85,527,639	83,194,693	155,548,290	153,061,419
Receipts	£14,079,412	£13,651,531	£8,879,114	£8,603,609	£6,437,437	£6,266,852	£8,273,535	£8,048,996
Average per passenger	1/2·94	1/3·15	1/1·87	1/2·05	1/6·06	1/6·08	1/0·77	1/0·62
<b>WORKMEN'S TICKETS—</b>								
Number	84,355,264	82,580,314	43,618,557	42,532,541	26,621,992	26,714,202	68,021,996	65,102,992
Receipts	£1,140,070	£1,136,017	£659,114	£640,865	£320,101	£319,543	£1,038,463	£979,000
Average per passenger	3·24d.	3·30d.	3·63d.	3·62d.	2·89d.	2·87d.	3·66d.	3·61d.
<b>TOTAL—</b>								
Number	314,206,470	302,310,693	201,005,653	193,035,874	113,202,623	110,813,041	228,019,661	222,064,472
Receipts	£16,382,477	£15,885,882	£10,384,386	£10,048,935	£7,219,053	£7,007,878	£10,414,992	£10,079,635
Average per passenger	1/0·51	1/0·61	1/0·40	1/0·49	1/3·31	1/3·18	10·96d.	10·89d.
<b>SEASON TICKETS—</b>								
<i>First class—</i>								
Number	19,662	21,228	14,969	15,680	3,611	3,817	20,106	19,274
Receipts	£525,525	£578,935	£324,898	£347,004	£97,443	£101,526	£548,796	£530,901
<i>Second class—</i>								
Number	365	406	31,773	32,241	—	—	—	—
Receipts	£1,873	£1,939	£395,047	£406,548	—	—	—	—
<i>Third class—</i>								
Number	194,312	195,682	105,661	105,493	64,565	63,104	181,929	173,855
Receipts	£1,752,783	£1,769,966	£1,030,841	£1,000,833	£495,950	£494,435	£2,423,699	£2,306,685
<b>TOTAL—</b>								
Number	214,339	217,316	152,403	153,414	68,176	66,921	202,035	193,129
Receipts	£2,280,181	£2,350,840	£1,750,786	£1,754,385	£593,393	£595,961	£2,972,495	£2,837,586
<b>TOTAL RECEIPTS FROM PASSENGERS, INCLUDING SEASON TICKETS</b>	<b>£18,662,658</b>	<b>£18,236,722</b>	<b>£12,135,172</b>	<b>£11,803,321</b>	<b>£7,812,446</b>	<b>£7,603,839</b>	<b>£13,387,487</b>	<b>£12,917,221</b>

for all four companies are not therefore available. The L.M.S. programme of £3,234,000 includes £1,147,000 on way and works, £1,433,000 on rolling stock, £173,000 on hotels, £150,000 on workshops, £97,000 on road vehicles, and £60,000 on steamboats. The L.N.E.R. has a prospective expenditure of £644,000 apart from sums to be spent under the Railways (Agreement) Act, made up principally of £271,000 on way and works and £252,000 on rolling stock, including £158,000 for electric vehicles on Tyneside. The G.W.R. also excludes expenditure under the Railways (Agreement) Act in its programme of £794,000, which includes £207,000 on passenger rolling stock, £75,000 on road vehicles, £75,000 on the enlargement of the Paddington hotel, and £375,000 on subscriptions to road transport companies. The Southern expects to spend £1,640,000 in 1936 and £5,200,000 in subsequent years. This year's expenditure includes £1,000,000 for electrification, £300,000 on stations, £240,000 on Southampton docks, and £100,000 on the Motspur Park and Leatherhead line. Another £500,000

remains to be spent on this line, and a further £4,000,000 is earmarked for electrification in subsequent years.

**Table III.—Revenue Receipts and Expenditure of the Whole Undertaking**

It has already been mentioned that gross receipts of the four companies from all businesses increased by nearly £2,600,000. The results of each separate company are as follow:—

	1935	1934	Increase	Increase
	£	£	£	per cent.
L.M.S.R.	69,455,245	68,180,325	1,274,920	1.87
L.N.E.R.	51,818,934	51,376,256	442,678	0.86
G.W.R.	29,788,622	29,280,382	508,240	1.74
S.R.	23,517,026	23,152,749	364,277	1.57 *
Total	174,579,827	171,989,712	2,590,115	1.51

The great bulk of the increase naturally comes from the railway side of the undertaking but each company shows increases in each of its other businesses, with the exception

**Table 6—Tonnage, Receipts and Average Receipt per ton from Merchandise (excluding Classes 1-6), Minerals and Merchandise (Classes 1-6), and Coal, Coke and Patent Fuel, and Total Goods Train Receipts, Years 1934 and 1935**

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
<b>MERCHANDISE (excluding classes 1-6)—</b>								
Tonnage	26,564,033	26,336,358	19,959,368	20,005,209	12,209,989	12,060,444	4,678,149	4,775,327
Receipts	£17,513,346	£17,320,421	£11,634,123	£11,540,728	£7,048,841	£6,885,429	£2,432,181	£2,534,020
Average per ton	13/2·23d.	13/1·84d.	11/7·89d.	11/6·45d.	11/6·55d.	11/5·02d.	10/4·78d.	10/7·36d.
Percentage of total goods train receipts	48·76	49·16	41·08	40·67	47·65	47·49	50·85	51·01
<b>MINERALS AND MERCHANDISE (classes 1-6)—</b>								
Tonnage	26,150,885	25,896,544	23,783,064	23,805,769	10,084,014	10,042,203	3,533,421	3,773,429
Receipts	£5,498,158	£5,308,222	£4,498,424	£4,574,763	£2,228,813	£2,221,698	£692,725	£751,944
Average per ton	4/2·46d.	4/1·19d.	3/9·39d.	3/10·12d.	4/5·05d.	4/5·10d.	3/11·05d.	3/11·83d.
Percentage of total goods train receipts	15·31	15·06	15·89	16·12	15·06	15·32	14·49	15·14
<b>COAL, COKE AND PATENT FUEL—</b>								
Tonnage	73,113,798	72,175,679	70,852,697	80,449,543	42,461,608	42,517,245	8,417,254	8,300,118
Receipts	£12,327,875	£12,039,242	£11,817,328	£11,904,947	£5,279,986	£5,192,238	£1,594,259	£1,617,712
Average per ton	3/4·47d.	3/4·03d.	2/11·52d.	2/11·52d.	2/5·84d.	2/5·31d.	3/9·46d.	3/10·78d.
Percentage of total goods train receipts	34·32	34·17	41·73	41·95	35·69	35·81	33·33	32·56
<b>TOTAL—</b>								
Tonnage	125,828,716	124,408,581	123,595,129	124,260,521	64,755,611	64,619,892	16,628,824	16,848,874
Receipts	£35,339,379	£34,667,885	£27,949,875	£28,020,438	£14,557,640	£14,299,365	£4,719,165	£4,903,676
Average per ton	5/7·40d.	5/6·88d.	4/6·27d.	4/6·12d.	4/5·95d.	4/5·11d.	5/8·11d.	5/9·85d.
<b>LIVE STOCK—</b>								
Number	6,492,867	6,606,105	4,205,823	4,465,022	2,410,156	2,257,794	693,359	686,904
Receipts	£578,273	£567,712	£368,427	£356,815	£236,522	£201,020	£63,597	£64,000
Percentage of total goods train receipts	1·61	1·61	1·30	1·26	1·60	1·38	1·33	1·29
<b>TOTAL GOODS TRAIN RECEIPTS</b>	<b>£35,917,652</b>	<b>£35,235,596</b>	<b>£28,318,302</b>	<b>£28,377,253</b>	<b>£14,794,162</b>	<b>£14,500,385</b>	<b>£4,782,762</b>	<b>£4,967,676</b>

of steamboats on the Southern, canals on the L.M.S.R. and G.W.R., and docks on the G.W.R. Air transport shows an expansion of business on the part of all three companies running these services, and although the losses in working have increased, the ratio of working expenses to receipts is diminishing. As regards the railway proper, the ratio of working expenses to receipts has fallen except on the L.N.E.R., and the return on capital expended on the railway shows a slight improvement. Under steamboats, whilst the Southern has a decline of £15,000 in net receipts, the G.W.R. has an increase of £11,000 and the L.M.S.R. of £32,000, whilst the loss on the L.N.E.R. has been reduced by £53,000. Increased losses in the working of canals are shown by the

L.M.S.R. and L.N.E.R., but the G.W.R. has reduced its loss by £4,500. Under docks, harbours and wharves, the Southern has much the best result. Its working expenses were only 70 per cent. of its receipts, and its net earnings have increased from £291,000 to £330,000. The working expenses of the other three companies are well over 90 per cent., but whilst the L.M.S.R. has turned a loss of over £14,000 in 1934 into a profit of nearly £15,000 in 1935, the net receipts of the L.N.E.R. have fallen by over £36,000, and those of the G.W.R. by £42,000. In hotels, &c., the L.M.S. net receipts have improved by £16,000, and the

(Text continued on page 827)

Table 7—Originating Freight Traffic, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
Merchandise (excluding Classes 1-6)	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Minerals and merchandise (Classes 1-6)	17,052,158	16,899,729	14,903,022	15,028,795	8,531,904	8,353,420	2,841,433	2,958,459
Coal, coke and patent fuel	21,151,859	20,745,885	19,271,431	19,540,566	7,069,014	7,088,149	1,735,935	1,932,768
Total	59,921,640	58,793,762	70,244,913	70,602,205	34,986,240	34,911,708	3,531,210	3,534,648
<i>Principal Traffics—</i>								
Bricks, blocks and tiles	2,237,746	2,151,567	2,514,300	2,499,072	416,820	480,880	165,138	218,946
Cement and lime	1,204,683	1,098,099	765,099	754,041	501,824	505,743	230,584	255,399
Creosote, tar and pitch	807,499	830,194	631,956	593,313	174,136	170,652	141,524	142,883
Grain, flour and milling offals	626,415	730,006	1,316,599	1,447,946	1,040,938	1,076,873	190,348	227,050
Gravel and sand	957,568	1,002,300	555,486	576,469	157,384	167,075	168,553	234,223
Iron and steel blooms, billets, ingots, &c.	1,159,076	1,104,786	1,445,178	1,403,470	1,013,858	965,320	4,294	3,402
Iron and steel scrap	2,095,272	1,982,744	1,373,806	1,407,288	785,248	792,202	129,690	135,710
Iron and steel, other descriptions	2,814,342	2,680,130	2,573,621	2,317,309	1,409,739	1,280,635	28,546	33,687
Iron ore	3,805,918	3,783,781	4,474,883	4,496,161	769,330	785,368	3,136	1,439
Iron, pig	1,589,258	1,472,244	833,054	823,528	398,217	407,802	1,342	1,350
Limestone and chalk	2,299,915	2,068,973	1,414,550	1,389,050	291,826	386,515	68,971	54,842
Manure, packed	235,827	222,353	574,646	618,354	98,865	107,193	137,254	124,262
Oil cake	393,659	378,755	396,585	413,994	155,015	120,266	60,842	76,737
Road making and road repairing material	1,719,984	1,944,651	639,217	822,653	1,041,364	1,057,901	277,771	328,133
Round timber, including mining	339,243	344,002	1,116,853	1,051,706	805,823	828,414	46,748	46,943
Timber, other than round	795,176	741,187	798,540	870,630	201,570	211,894	97,077	116,323
Vegetables	339,835	326,648	1,988,550	2,079,832	147,377	135,490	62,591	53,180
<i>Live Stock—</i>	Heads	Heads	Heads	Heads	Heads	Heads	Heads	Heads
Horses	9,820	12,325	6,942	5,118	13,315	14,922	4,249	4,195
Cattle	1,091,281	1,034,132	869,247	838,784	384,665	356,441	115,730	109,975
Calves	108,272	100,318	93,536	102,738	85,493	82,758	12,240	14,041
Sheep and lambs	2,928,761	3,144,028	1,714,608	2,023,097	684,180	744,005	286,592	325,561
Pigs	496,774	413,496	685,879	573,416	488,218	385,953	165,277	147,271
Miscellaneous	181	250	300	568	37	65	3	87
Total	4,635,089	4,704,549	3,370,512	3,543,721	1,655,908	1,584,144	584,091	601,130

Table 8—Expenditure in respect of Railway Working, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
A.—MAINTENANCE OF WAY AND WORKS.	1935	1934	1935	1934	1935	1934	1935	1934
£6,876,174	£6,707,727	£4,837,661	£4,655,444	£3,111,822	£3,029,388	£3,154,269	£3,016,712	
Per cent. of traffic expenditure	13.90	13.55	12.97	12.55	15.05	14.94	19.63	18.81
B.—MAINTENANCE OF ROLLING-STOCK.	£8,096,444	£7,981,140	£7,763,798	£8,063,919	£3,172,185	£3,135,572	£2,398,604	£2,330,286
Per cent. of capital expenditure on rolling-stock.	13.62	13.55	16.52	17.18	14.96	14.84	13.88	13.48
Per cent. of traffic expenditure	16.36	16.12	20.81	21.74	15.34	15.46	14.93	14.53
C.—LOCOMOTIVE RUNNING EXPENSES.	£12,066,203	£11,937,447	£9,114,257	£8,975,260	£4,954,525	£4,862,262	£4,077,234	£4,018,684
Per cent. of traffic expenditure.	24.38	24.11	24.43	24.20	23.96	23.98	25.37	25.05
D.—TRAFFIC EXPENSES ....	£18,168,244	£18,011,976	£12,448,371	£12,316,669	£7,159,312	£7,049,287	£4,952,788	£4,944,982
Per cent. of traffic expenditure.	36.72	36.38	33.37	33.20	34.61	34.76	30.82	30.83
E.—GENERAL CHARGES ....	£2,327,231	£2,124,954	£1,255,635	£1,261,172	£961,541	£930,026	£747,051	£737,460
Per cent. of traffic expenditure.	4.70	4.29	3.37	3.40	4.65	4.59	4.65	4.60
LAW CHARGES ....	£61,778	£63,942	£42,140	£42,438	£28,065	£27,735	£30,310	£25,357
Per cent. of traffic expenditure.	0.13	0.13	0.11	0.11	0.13	0.14	0.19	0.16
PARLIAMENTARY EXPENSES	£14,071	£10,813	£1,815	£968	£842	£1,440	£2,000	£2,000
Per cent. of traffic expenditure.	0.03	0.02	—	—	—	0.01	0.01	0.01
COMPENSATION ....	£338,620	£339,108	£239,616	£205,607	£121,212	£119,806	£60,894	£78,730
Per cent. of traffic expenditure.	0.68	0.68	0.64	0.56	0.59	0.59	0.38	0.49
RATES TRIBUNAL ....	£4,878	£3,954	£3,809	£3,366	£2,372	£2,109	£2,173	£1,787
Per cent. of traffic expenditure.	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
RATES, TAXES AND TITHE RENT CHARGES	£476,613	£484,316	£363,347	£335,289	£277,247	£266,089	£119,940	£179,662
Per cent. of traffic expenditure	0.96	0.98	0.97	0.90	1.34	1.31	0.75	1.12
RAILWAY FREIGHT REBATES FUND	£586,248	£1,398,861	£983,557	£977,618	£818,565	£781,988	£370,681	£556,994
Per cent. of traffic expenditure	1.19	2.82	2.64	2.64	3.96	3.85	2.31	3.47
NATIONAL INSURANCE ACTS	£475,258	£463,726	£383,151	£382,394	£217,522	£214,653	£146,122	£139,649
Per cent. of traffic expenditure	0.96	0.93	1.03	1.03	1.05	1.06	0.91	0.87
G.—RUNNING POWERS (BALANCE)	Cr. £7,984	Cr. £11,671	Cr. £129,713	Cr. £124,641	Cr. £143,619	Cr. £142,868	£7,403	£8,212
Per cent. of traffic expenditure	0.02	0.02	0.35	0.25	0.69	0.70	0.04	0.05
TOTAL TRAFFIC EXPENDITURE	£49,483,778	£49,516,295	£37,307,444	£37,095,503	£20,681,591	£20,277,498	£16,069,469	£16,040,515
Per cent. on traffic receipts	81.04	82.56	83.30	83.29	81.09	80.89	78.74	79.68
Per train-mile ....	6s. 5.42d.	6s. 6.97d.	6s. 9.73d.	6s. 10.39d.	6s. 4.59d.	6s. 4.79d.	4s. 9.76d.	4s. 10.71d.
H.—MILEAGE DEMURRAGE AND WAGON HIRE (BALANCE)	Cr. £11,394	Cr. £1,913	Cr. £196,071	Cr. £208,062	£76,492	£71,818	£18,255	£24,691
MISCELLANEOUS ....	£49,080	£48,830	£45,018	£45,003	£1,979	£1,160	£5,453	£5,272
Total expenditure ....	£49,521,464	£49,563,212	£37,156,391	£36,932,444	£20,760,062	£20,350,476	£16,093,177	£16,070,478
Per cent. on receipts in respect of railway working	80.32	81.83	82.30	82.23	80.66	80.47	77.94	78.90
Per train-mile ....	6s. 5.48d.	6s. 7.04d.	6s. 9.40d.	6s. 10.03d.	6s. 4.88d.	6s. 5.07d.	4s. 9.84d.	4s. 10.82d.

Table 9—Maintenance and Renewal of Way and Works, Abstract "A," Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
Miles of line maintained reduced to single track (including sidings) (per Statistical Return X)	19,157	19,182	16,306	16,302	8,675	8,666	5,298	5,316
Train mileage (per Statistical Return XIIb)	153,404,042	150,486,422	109,549,886	108,053,106	64,804,301	63,371,714	66,774,887	65,574,345
Traffic receipts (per Account No. 10)]	£61,060,027	£59,975,561	£44,784,569	£44,538,488	£25,503,866	£25,069,525	£20,400,127	£20,131,926
SUPERINTENDENCE (SALARIES AND OFFICE EXPENSES)	£484,647	£471,138	£305,614	£315,879	£182,873	£182,815	£175,191	£171,344
Per mile of single track	£25.30	£24.56	£18.74	£19.38	£21.08	£21.10	£33.07	£32.23
Per train-mile	0.76d.	0.75d.	0.67d.	0.70d.	0.68d.	0.69d.	0.63d.	0.63d.
MAINTENANCE OF ROADS, BRIDGES AND WORKS	£813,337	£810,613	£545,883	£560,252	£375,199	£409,080	£394,652	£314,097
Per mile of single track	£42.46	£42.26	£33.48	£34.37	£43.25	£47.21	£74.49	£59.09
Per train-mile	1.27d.	1.29d.	1.20d.	1.24d.	1.39d.	1.55d.	1.42d.	1.15d.
MAINTENANCE OF PERMANENT WAY—								
COMPLETE RENEWALS—								
Mileage of single track renewed (per Statistical Return X)	534	531	254	225	271	266	169	175
Wages	£295,915	£279,068	£152,582	£136,734	£137,802	£134,467	£111,950	£111,451
Per mile of single track	£15.45	£14.55	£9.36	£8.39	£15.88	£15.52	£21.13	£20.97
Per mile of single track renewed	£554	£525	£601	£608	£508	£505	£602	£637
Per train-mile	0.46d.	0.44d.	0.33d.	0.30d.	0.51d.	0.51d.	0.40d.	0.41d.
Materials	£890,294	£807,597	£406,353	£344,039	£440,328	£432,543	£348,430	£366,930
Per mile of single track	£46.47	£42.10	£24.92	£21.11	£50.76	£49.91	£65.76	£69.02
Per mile of single track renewed	£1,667	£1,521	£1,599	£1,529	£1,625	£1,626	£2,062	£2,097
Per train-mile	1.39d.	1.29d.	0.89d.	0.77d.	1.63d.	1.64d.	1.25d.	1.34d.
Engine power and wagon repairs	£67,579	£67,227	£26,289	£23,372	£24,113	£22,492	£27,800	£28,544
Per mile of single track	£3.53	£3.50	£1.61	£1.43	£2.78	£2.59	£5.25	£5.37
Per mile of single track renewed	£127	£127	£104	£104	£89	£85	£165	£163
Per train-mile	0.11d.	0.11d.	0.06d.	0.05d.	0.09d.	0.08d.	0.10d.	0.10d.
Total	£1,253,788	£1,153,892	£585,224	£504,145	£602,243	£589,502	£488,180	£500,925
Per mile of single track	£65.45	£60.15	£35.89	£30.93	£69.42	£68.02	£92.14	£95.36
Per mile of single track renewed	£2,348	£2,173	£2,304	£2,241	£2,222	£2,216	£2,889	£2,897
Per train-mile	1.96d.	1.84d.	1.28d.	1.12d.	2.23d.	2.23d.	1.75d.	1.85d.
Percentage of capital expenditure on way and works (per Account No. 4)	0.40	0.37	0.25	0.21	0.48	0.47	0.40	0.42
REPAIRS AND PARTIAL RENEWALS—								
Wages	£2,017,070	£2,060,263	£1,535,727	£1,552,329	£934,187	£913,736	£798,599	£754,515
Per mile of single track	£105.29	£107.42	£94.18	£95.23	£107.69	£105.44	£150.73	£141.93
Per train-mile	3.16d.	3.29d.	3.37d.	3.45d.	3.46d.	3.46d.	2.87d.	2.76d.
Materials	£576,921	£646,122	£472,025	£419,985	£168,867	£171,078	£369,411	£344,854
Per mile of single track	£30.12	£33.68	£28.95	£25.76	£19.47	£19.74	£69.73	£64.87
Per train-mile	0.90d.	1.03d.	1.03d.	0.93d.	0.62d.	0.65d.	1.33d.	1.26d.
Engine power and wagon repairs	£100,775	£100,433	£51,040	£50,579	£18,606	£14,948	£27,762	£27,892
Per mile of single track	£5.26	£5.23	£3.13	£3.10	£2.14	£1.72	£5.24	£5.25
Per train-mile	0.16d.	0.16d.	0.11d.	0.11d.	0.07d.	0.06d.	0.10d.	0.10d.

(Continued on next page)

Table 9—Maintenance and Renewal of Way and Works, Abstract "A," Years 1934 and 1935—Continued

		L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
		1935	1934	1935	1934	1935	1934	1935	1934
REPAIRS AND PARTIAL RE- NEWALS—continued									
Total	£2,694,766	£2,806,818	£2,058,792	£2,022,893	£1,121,660	£1,099,762	£1,195,772	£1,127,261	
Per mile of single track	£140.67	£146.33	£126.26	£124.09	£129.30	£126.90	£225.70	£212.05	
Per train-mile	4.22d.	4.48d.	4.51d.	4.49d.	4.15d.	4.17d.	4.30d.	4.12d.	
MAINTENANCE OF SIGNALLING	£640,627	£614,506	£533,255	£529,216	£311,988	£306,893	£387,773	£260,083	
Per mile of single track	£33.76	£32.04	£32.70	£32.46	£35.96	£35.41	£73.19	£48.92	
Per train-mile	1.01d.	0.98d.	1.17d.	1.18d.	1.15d.	1.16d.	1.39d.	0.95d.	
MAINTENANCE OF TELEGRAPHHS AND TELEPHONES	£176,873	£159,866	£143,080	£136,902	£74,012	£96,325	£73,109	£94,515	
Per mile of single track	£9.23	£8.33	£8.77	£8.40	£8.53	£11.12	£13.80	£17.78	
Per train-mile	0.28d.	0.26d.	0.31d.	0.31d.	0.27d.	0.36d.	0.27d.	0.35d.	
MAINTENANCE OF ELECTRIC TRACK EQUIPMENT	£25,537	£27,670	£23,428	£12,079	£1,829	£1,510	£57,753	£57,987	
Per mile of single track	£1.33	£1.44	£1.44	£0.74	£0.21	£0.17	£10.90	£10.91	
Per train-mile	0.04d.	0.04d.	0.05d.	0.03d.	0.01d.	0.01d.	0.21d.	0.21d.	
MAINTENANCE OF STATIONS AND BUILDINGS	£950,067	£1,003,337	£661,807	£609,100	£434,588	£445,840	£734,265	£441,291	
Per mile of single track	£49.59	£52.31	£40.59	£37.36	£50.10	£51.45	£138.60	£83.01	
Per train-mile	1.49d.	1.60d.	1.45d.	1.35d.	1.61d.	1.69d.	2.64d.	1.62d.	
TRANSFER TO OR FROM SUS- PENSE ACCOUNT	Cr. £169,468	Cr. £340,113	Cr. £19,422	Cr. £35,113	£7,430	Cr. £102,338	Cr. £352,426	£43,209	
Total of abstract	£6,876,174	£6,707,727	£4,837,661	£4,655,443	£3,111,822	£3,029,388	£3,154,269	£3,016,712	
Per mile of single track	£358.94	£349.69	£296.68	£285.58	£358.71	£349.57	£595.37	£567.48	
Per train-mile	10.76d.	10.70d.	10.60d.	10.34d.	11.52d.	11.47d.	11.34d.	11.04d.	
Per cent. on traffic receipts	11.26	11.18	10.80	10.45	12.20	12.08	15.46	14.98	
QUANTITIES OF PRINCIPAL MATERIALS USED (PER STATISTICAL RETURN X)—									
	Yards	Yards	Yards	Yards	Yards	Yards	Yards	Yards	Yards
Ballast	595,075	702,371	477,056	483,669	347,043	319,384	302,050	272,221	
Rails	89,576	87,014	43,437	37,172	31,643	30,364	27,489	28,529	
Sleepers	No.	No.	No.	No.	No.	No.	No.	No.	
	1,573,219	1,494,757	1,123,268	1,034,357	670,585	622,910	604,721	649,662	

(Continued from page 824)

Southern has converted a loss of £3,000 into a gain of nearly £6,000. Collection and delivery results do not show very much variation in comparison with 1934.

The net receipts from all businesses and the return on capital of the four companies are as follow:—

	Return				
	1935	1934	Increase	Increase	per cent.
	£	£	£	£	per cent.
L.M.S.R. ...	12,411,610	11,255,762	1,155,848	10.27	2.74
L.N.E.R. ...	7,873,667	7,855,008	18,659	0.24	2.24
G.W.R. ...	4,971,018	4,969,001	2,017	0.04	2.70
S.R. ...	5,040,626	4,753,374	287,252	6.04	3.01
Total ...	30,296,921	28,833,145	1,463,776	5.08	

The improved results of the L.M.S.R. and Southern in contrast with those of the L.N.E.R. and G.W.R. are due of course to the credits of £885,000 and £250,000 taken by the two former companies respectively in respect of rates, and if these amounts are deducted the increase in net receipts is reduced as follows:—

	£	Per cent.
L.M.S.R. ...	270,848	2.41
S.R. ...	37,252	0.78
Total (four companies) ...	320,776	1.14

Table IV.—Receipts in Respect of Railway Working

This table indicates that all four companies have secured creditable increases in passenger receipts, the result of their enlightened fares policy, but they have all suffered losses in receipts from parcels and mails consequent upon the reduction made by the Government in the parcel post charges. The L.M.S.R. and G.W.R. have obtained an increase in each branch of goods traffic whilst the Southern shows an all round loss. The L.N.E.R. records an increase in receipts from general merchandise and live stock, but a decrease from minerals and merchandise (classes 1-6), and from coal, coke and patent fuel. That company also shows a reduction in miscellaneous railway receipts.

Table V.—Number of and Receipts from Passengers

One pleasing feature of this table is the improvement in first class passenger travel, receipts from this source showing an increase of £202,000 or 6.73 per cent. It is apparent from these figures that the reduction in first class fares made at the beginning of the year has had a stimulating effect. Against this feature however must be noted a decrease in receipts from first class season tickets, except on the Southern, which reports an increase of £18,000.

(Text continued on page 830)

Table 10—Maintenance of Rolling-Stock, Abstract "B," Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
<b>ENGINE MILES PER STATISTICAL RETURN XIIc—</b>	1935	1934	1935	1934	1935	1934	1935	1934
Steam	215,259,916	212,380,340	160,390,610	158,767,299	94,121,370	92,009,053	51,289,907	52,783,063
Electric Traction	6,147,846	6,108,211	1,442,201	1,458,354	361,759	357,243	28,388,922	25,947,081
Steam Rail Motors	166,719	344,435	2,587,149	2,594,824	75,801	187,695	8,432	19,922
Any other form of power	252,506	158,798	227,320	210,141	262,285	91,456	—	7,910
Total	221,826,987	218,991,784	164,647,280	163,030,618	94,821,215	92,645,447	79,687,261	78,757,976
<b>TRAFFIC RECEIPTS PER ACCOUNT</b>								
No. 10—								
Passenger	£25,142,375	£24,739,965	£16,466,267	£16,161,235	£10,709,704	£10,569,140	£15,626,365	£15,164,250
Goods	£35,917,652	£35,235,596	£28,318,302	£28,377,253	£14,794,162	£14,500,385	£4,782,762	£4,967,676
Total	£61,060,027	£59,975,561	£44,784,569	£44,538,488	£25,503,866	£25,069,525	£20,409,127	£20,131,926
<b>STOCK OF ENGINES, &amp;c., PER STATISTICAL RETURN IIa—</b>								
Locomotives—								
Steam	7,885	7,996	6,787	6,846	3,593	3,608	1,900	1,919
Electric	—	—	13	13	—	—	—	—
Petrol	9	8	2	2	—	—	—	—
Rail Motor Vehicles—								
Steam	9	22	90	90	—	17	1	1
Electric	250	250	82	82	20	20	1,155	1,059
Petrol	3	3	4	5	7	4	—	—
Total	8,156	8,279	6,978	7,038	3,620	3,649	3,056	2,979
<b>LOCOMOTIVES, &amp;c., COMPLETELY RENEWED PER STATISTICAL RETURN XI—</b>								
Locomotives—								
Steam	326	217	102	60	122	106	16	8
Electric	—	—	—	—	—	—	—	—
Rail Motor Vehicles—								
Steam	—	—	—	—	—	—	—	—
Electric	—	—	—	—	—	—	44	—
Petrol	—	—	—	—	—	—	—	—
<b>SUPERINTENDENCE (SALARIES, OFFICE EXPENSES)</b>	£358,820	£400,943	£301,101	£303,089	£108,194	£111,315	£100,448	£97,878
<b>LOCOMOTIVES AND TENDERS (STEAM)—</b>								
Complete renewals	£1,654,407	£1,166,836	£460,761	£314,173	£378,360	£283,179	£60,680	£54,873
Repairs and Partial Renewals	£3,098,283	£3,240,494	£3,224,104	£3,207,604	£1,330,018	£1,365,121	£728,759	£744,037
Per engine	£392	£405	£475	£468	£370	£378	£384	£388
Per engine-mile (steam)	3·49d.	3·66d.	4·82d.	4·85d.	3·39d.	3·56d.	3·41d.	3·38d.
Transfer to or from Renewal Account	Cr. £924,776	Cr. £639,018	Cr. £252,903	£116,630	Cr. £97,827	Cr. £5,782	£90,216	£97,206
Engine power supplied to and by the Company (balance)	Cr. £137,447	Cr. £135,426	Cr. £220,064	Cr. £205,366	Cr. £60,499	Cr. £61,147	Cr. £19,196	Cr. £17,984
Total	£3,690,467	£3,632,886	£3,211,898	£3,433,042	£1,550,052	£1,581,371	£860,459	£878,132

(Continued on next page)

Table 10—Maintenance of Rolling-Stock, Abstract "B," Years 1934 and 1935—Continued

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
Per engine	£468	£454	£473	£500	£431	£421	£453	£458
Per engine-mile (steam)	4·11d.	4·11d.	4·81d.	5·19d.	3·95d.	4·12d.	4·03d.	3·99d.
Per cent. on traffic receipts	6·04	6·06	7·17	7·71	6·08	6·31	4·22	4·36
Engine miles run per steam engine per annum	27,300	26,534	23,632	23,191	26,196	25,501	26,995	27,558
LOCOMOTIVES (ELECTRIC)—								
Repairs and partial renewals	—	—	£544	£856	—	—	—	—
Per engine-mile (electric loco.)	—	—	44·06d.	5·58d.	—	—	—	—
Per engine	—	—	£42	£66	—	—	—	—
Per cent. on traffic receipts	—	—	—	—	—	—	—	—
RAIL MOTOR VEHICLES (OTHER THAN ELECTRIC)—								
Complete renewals	£45,320	Cr. £292	—	—	£313	—	—	Cr. £500
Repairs and partial renewals	£2,704	£4,635	£40,997	£41,623	£2,797	£3,578	£174	£125
Per mile (rail motor)	3·89d.	2·21d.	3·80d.	3·56d.	1·99d.	3·08d.	4·97d.	1·08d.
Per vehicle (rail motor)	£225	£185	£436	£438	£400	£170	£174	£125
Transfer to or from Renewal Account	Cr. £44,093	£2,792	£21,585	£20,859	£762	—	£100	£700
Engine power supplied to and by the Company (balance)	—	—	Cr. £16	Cr. £38	—	—	—	—
Total	£3,931	£7,135	£62,566	£62,444	£3,872	£3,578	£274	£325
Per mile (rail motor)	5·68d.	3·40d.	5·80d.	5·34d.	2·75d.	3·08d.	7·83d.	2·80d.
Per vehicle	£328	£285	£666	£657	£553	£170	£274	£325
Per cent. on traffic receipts	0·01	0·01	0·14	0·14	0·02	0·01	—	—
RAIL MOTOR VEHICLES (ELECTRIC)								
Complete renewals	—	Cr. £1,000	—	—	—	—	£353,704	£85,742
Repairs and partial renewals	£128,449	£120,737	£14,856	£15,008	£12,769	£9,802	£238,307	£206,489
Per vehicle	£514	£483	£181	£183	£638	£490	£206	£195
Transfer to or from Renewal Account	£38,505	£43,709	£8,266	£8,507	—	—	Cr. £263,451	Cr. £16,078
Engine power supplied to and by the Company (balance)	—	—	—	—	—	—	£3,666	£3,611
Total	£166,954	£163,446	£23,122	£23,515	£12,769	£9,802	£332,226	£279,765
Per vehicle	£668	£654	£282	£287	£638	£490	£288	£264
Per cent. on traffic receipts	0·27	0·27	0·05	0·05	0·05	0·04	1·63	1·39
NUMBER OF COACHING VEHICLES (PER STATISTICAL RETURN IIc)	23,695	24,023	18,811	19,056	8,910	8,948	7,428	7,642
COACHING VEHICLES COMPLETELY RENEWED (PER STATISTICAL RETURN XI)	866	1,090	664	379	311	246	294	175
COACHING VEHICLES (other than Rail Motors) —								
Complete renewals	£1,100,016	£1,465,954	£1,494,339	£645,572	£362,542	£370,648	£390,327	£267,678
Repairs and partial renewals	£1,057,370	£1,017,498	£1,323,188	£1,323,314	£545,605	£511,232	£646,853	£572,567
Per vehicle	£45	£42	£70	£69	£61	£57	£87	£75
Transfer to or from Renewal Account	Cr. £287,610	Cr. £656,080	Cr. £726,746	£27,568	Cr. £97,199	Cr. £104,873	Cr. £235,067	Cr. £64,445
Total	£1,869,776	£1,827,372	£2,090,781	£1,996,454	£810,948	£777,007	£811,112	£775,800

(Continued on next page)

Table 10—Maintenance of Rolling-Stock, Abstract "B," Years 1934 and 1935—Continued

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
Per vehicle ....	£79	£76	£111	£105	£91	£87	£109	£102
Per cent. on passenger train traffic receipts	7.44	7.39	12.70	12.35	7.57	7.35	5.19	5.12
NUMBER OF MERCHANTISE AND MINERAL VEHICLES (PER STATISTICAL RETURN II)	271,246	270,441	244,981	247,919	80,421	80,350	33,669	33,584
MERCHANTISE AND MINERAL VEHICLES COMPLETELY RE-NEWED (PER STATISTICAL RETURN XI)	9,970	7,688	6,667	3,696	3,236	2,504	1,477	1,097
MERCHANTISE AND MINERAL VEHICLES—								
Complete renewals ....	£1,234,445	£1,005,733	£1,020,080	£355,358	£385,029	£277,265	£238,874	£164,274
Repairs and partial renewals ....	£1,155,171	£1,169,448	£1,648,541	£1,646,349	£447,953	£417,123	£159,084	£157,367
Per vehicle ....	£4.26	£4.32	£6.73	£6.64	£5.57	£5.19	£4.72	£4.69
Transfer to or from Renewal Account	Cr. £383,119	Cr. £225,823	Cr. £594,836	£242,812	Cr. £146,632	Cr. £41,889	Cr. £103,874	Cr. £23,254
Total ....	£2,006,497	£1,949,358	£2,073,785	£2,244,519	£686,350	£652,499	£294,084	£298,387
Per vehicle ....	£7.40	£7.21	£8.46	£9.06	£8.53	£8.12	£8.73	£8.88
Per cent. on goods train traffic receipts	5.59	5.53	7.32	7.91	4.64	4.50	6.15	6.01
TOTAL OF ABSTRACT ....	£8,096,444	£7,981,140	£7,763,798	£8,063,919	£3,172,185	£3,135,572	£2,398,604	£2,330,286
Per cent. on traffic receipts	13.16	13.31	17.34	18.11	12.44	12.51	11.75	11.58

(Continued from page 827)

Second class passengers, both ordinary and season are still diminishing on the L.N.E.R. Of course the bulk of the increase in receipts has come from the third class, where the number of ordinary journeys has risen by twenty-one million or 3.54 per cent. Third class season tickets have also increased except on the L.M.S.R. Receipts from workmen's tickets have increased by £82,000, nearly all of which has come from the L.N.E. and Southern Railways. This figure is a fair criterion of the improvement in trade conditions, though doubtless the electrification on the Southern has also been a contributory factor to the increase in receipts. In total the four companies report an increase of £1,436,660 from passengers.

#### Table VI.—Goods Train Traffic—Tons and Receipts

All round increases in receipts on the L.M.S.R. and G.W.R. and all round decreases on the Southern have already been noted. Taking the four companies together the receipts from each class of traffic show the following variations:—

	1935	1934	Increase	Per cent.
Merchandise ...	£38,628,491	£38,280,598	£347,893	0.91
Minerals, &c., Classes 1-6 ...	12,918,120	12,856,627	61,493	0.48
Coal and coke ...	31,019,448	30,754,139	265,309	0.86
Livestock ...	1,246,819	1,189,547	57,272	0.48
Total ...	83,812,878	83,080,911	731,967	0.88

The average receipts per ton show an upward tendency except on the Southern.

#### Table VII.—Originating Freight Traffic

Taking first of all the three classes of traffic, it will be seen that the L.N.E. and Southern Railways have decreases in tonnage under each head, whilst the L.M.S.R. has increases, and the G.W.R. has increases except in minerals and merchandise (Classes 1-6). Taking the principal traffics, in-

creases are again noted in blooms, billets and ingots and other descriptions of iron and steel. The L.M.S.R. has better tonnages of iron ore, pig iron and iron and steel scrap, but generally speaking the other companies have not done so well. Bricks and cement are up on the L.M.S.R. and L.N.E.R., but down on the G.W.R. and Southern. Grain and flour, and gravel and sand, are down all round. Except on the G.W.R. there are improved carryings of limestone and chalk, but there are fluctuations in creosote, tar and pitch, packed manure and oil cake. Road material is again on the down grade and only the L.N.E.R. shows an increase in round timber, whilst the L.M.S.R. alone reports an increase in other timber. The L.N.E.R. is the only company with a lower tonnage of vegetables, due doubtless to diminished carryings of sugar beet.

Under the head of livestock, more cattle and pigs have been conveyed, but fewer sheep and lambs. The L.M.S.R. and G.W.R. have carried fewer horses and more calves, whilst on the L.N.E.R. and Southern the position is exactly reversed. In the aggregate only the G.W.R. can show an increase in the number of originating livestock.

#### Table VIII.—Expenditure in Respect of Railway Working

It will be seen that in the four principal abstracts of expenditure, all companies show increases, with the one exception that the L.N.E.R. has a reduction of £300,000 in maintenance of rolling stock. This will be referred to later under Table X. The L.N.E.R. is also the only company to show a reduction in general charges. That company has had to pay, however, £34,000 more in compensation, whilst the Southern has a decrease of £18,000 under this head. The different policy adopted by the L.M.S. and Southern companies on the one hand, and the L.N.E.R. and G.W.R. on the other as regards rates has already been referred to, and it

(Text continued on page 832)

Table 11—Rolling-Stock Repairs, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
<b>LOCOMOTIVE REPAIRS (Steam)—</b>								
Heavy	2,715	3,010	2,714	2,797	1,030	1,136	792	807
Light	3,157	3,459	1,861	1,627	1,050	917	374	378
Total	5,872	6,469	4,575	4,424	2,080	2,053	1,166	1,185
Cost	£3,098,283	£3,240,494	£3,224,104	£3,207,604	£1,330,018	£1,365,121	£728,759	£744,037
<b>LOCOMOTIVE REPAIRS (Electric)—</b>								
Heavy	—	—	1	—	—	—	—	—
Light	—	—	9	1	—	—	—	—
Total	—	—	10	1	—	—	—	—
Cost	—	—	£544	£856	—	—	—	—
<b>RAIL MOTOR VEHICLES (Steam)—</b>								
Heavy	2	7	39	43	1	6	—	—
Light	5	5	144	125	28	36	2	1
Total	7	12	183	168	29	42	2	1
Cost	£2,704	£4,635	£40,997	£41,623	£2,797*	£3,578	£174	£126
<b>RAIL MOTOR VEHICLES (Oil)—</b>								
Heavy	—	—	—	—	1	—	—	—
Light	—	—	—	—	7	—	—	—
Total	—	—	—	—	8	—	—	—
<b>RAIL MOTOR VEHICLES (Electric)—</b>								
Heavy	96	93	2	6	2	—	1,026	818
Light	780	983	226	244	71	105	805	1,226
Total	876	1,076	228	250	73	105	1,883†	2,073‡
Cost	£128,449	£120,737	£14,856	£15,008	£12,769	£9,802	£238,307	£206,489
<b>CARRIAGE, &amp;c., REPAIRS—</b>								
Heavy	737	1,267	3,733	3,839	2,460	2,452	1,663	1,277
Light	10,784	9,982	42,255	41,331	10,976	10,811	15,582	17,454
Total	11,521	11,249	45,988	45,170	13,436	13,263	17,311†	18,762†
Cost	£1,057,370	£1,017,498	£1,323,188	£1,323,314	£545,605	£511,232	£646,853	£572,567
<b>WAGON REPAIRS—</b>								
Heavy	15,658	20,384	30,158	33,076	9,635	9,313	1,872	1,643
Light	481,488	472,900	536,732	532,433	218,180	210,030	55,379	53,138
Total	497,146	493,284	566,890	565,509	227,815	219,343	57,251	54,781
Cost	£1,155,171	£1,169,448	£1,648,541	£1,646,349	£447,953	£417,123	£159,084	£157,367

\* Includes repairs to rail motor vehicles (oil).

† Includes 31 carriages converted for electric working in 1934 and 66 in 1935.

‡ Includes 29 carriages converted for electric working in 1934 and 52 in 1935.

(Continued on next page)

Table 11—*Rolling-Stock Repairs, Years 1934 and 1935—Continued*

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
<b>ROLLING-STOCK UNDER AND AWAITING REPAIR AT DECEMBER 31—</b>								
Locomotives (steam) ...	665	512	396	465	334	363	137	144
Per cent. of stock ...	8.42	6.40	5.83	6.79	9.30	10.06	7.21	7.50
Rail motor vehicles (steam) ...	—	2	11	8	—	6	—	—
Per cent. of stock ...	—	8.00	12.22	8.42	—	28.57	—	—
Rail motor vehicles (oil) ...	—	—	—	—	1	—	—	—
Per cent. of stock ...	—	—	—	—	14.29	—	—	—
Rail motor vehicles (electric) ...	23	20	5	4	—	—	74	96
Per cent. of stock ...	9.20	8.00	6.10	4.88	—	—	6.41	9.08
Carriages ...	1,135	872	924	784	511	436	221	236
Per cent. of stock ...	6.57	4.94	7.43	6.30	8.36	7.12	3.99	4.14
Other coaching vehicles ...	415	342	523	542	186	190	97	116
Per cent. of stock ...	6.47	5.35	8.21	8.19	6.66	6.73	5.13	5.91
Wagons ...	9,055	8,394	9,766	9,811	3,815	5,521	935	949
Per cent. of stock ...	3.34	3.10	3.99	3.96	4.74	6.87	2.78	2.83

*(Continued from page 830)*

will be observed that the L.N.E.R. shows an increase of £34,000 and the G.W.R. an increase of £48,000. The other items in the table do not show any appreciable changes.

**Table IX.—Maintenance and Renewal of Way and Works**

In the aggregate, 31 more miles of track were renewed than in 1934, the largest increase being on the L.N.E.R., and on both the L.N.E.R. and L.M.S.R. there was a marked increase in the cost per mile of track renewed. Ordinary maintenance per mile of single track has increased by nearly £14 on the Southern, and that company has spent £80,000 more on maintenance of roads, bridges and works, £128,000 more on signalling, and £293,000 more on stations and buildings. It is not surprising therefore that £352,000 has been taken from reserve to meet this extra expenditure, compared with only £43,000 in 1934. Increases on the L.M.S.R. of £32,000 on signalling and £17,000 on telegraphs and telephones have been balanced by a saving of £53,000 on stations and buildings and the total actual expenditure in both years was practically equal, but in 1935 £170,000 less was taken from reserve than in 1934.

The L.N.E.R. nearly doubled its expenditure on electric track equipment, and spent £53,000 more on stations and buildings. It took £16,000 less from reserve, and the total cost of the abstract was £182,000 more than in 1934. The total increase of £82,000 on the G.W.R. was more than accounted for by transferring £7,000 to reserve instead of taking £102,000 therefrom as was done in the previous year. The L.M.S.R. used substantially less ballast for maintenance purposes, but used nearly 80,000 more sleepers. The L.N.E.R. used 6,000 more tons of rails and 89,000 more sleepers, and the G.W.R. 48,000 more sleepers. The Southern used more ballast, but 45,000 fewer sleepers.

**Table X.—Maintenance of Rolling Stock**

All companies show reductions in their stocks of steam locomotives, but the Southern has added 96 more electric rail motor vehicles. The number of steam locomotives com-

pletely renewed has increased from 391 to 566, and the Southern has renewed 44 electric rail motor vehicles. There has been no marked change in the cost per locomotive of maintenance and renewal, and all companies except the Southern show an increase in the number of miles run per engine per annum. The cost of electric rail motor vehicles on the Southern has naturally increased substantially. All companies except the L.M.S.R. have largely increased their renewals of coaching vehicles and the cost per vehicle has increased all round. The number of wagon renewals has increased from 14,985 to 21,350, and whilst the cost per wagon has increased on the L.M.S.R. and G.W.R., the L.N.E.R. has reduced its cost from £9.05 to £8.46 and the Southern has also effected a reduction. In this abstract the transfers to or withdrawals from the renewal fund vary very considerably from year to year and below is given a comparison of the figures in 1934 and 1935:—

	1935		1934	
	Transfers to Withdrawals	Transfers to Withdrawals	Transfers to Withdrawals	Transfers to Withdrawals
L.M.S.R. ...	£ 38,505	£ 1,639,598	£ 46,501	£ 1,520,921
L.N.E.R. ...	29,851	1,574,485	416,376	—
G.W.R. ...	762	341,658	—	152,544
S.R. ...	90,316	602,392	97,906	103,777

It will be seen that the withdrawals in 1935 have been on a much more extensive scale than in 1934 in the case of all companies, and particularly so on the L.N.E.R.

**Table XI.—Rolling Stock Repairs**

The L.M.S.R. has executed fewer repairs to its locomotives, whilst the figures of the other companies remain fairly constant. The percentage of L.M.S. locomotives under or awaiting repair has increased from 6.40 to 8.42. The repairs to electric rail motor vehicles have decreased all round, yet notwithstanding this reduction the Southern has a smaller number of vehicles under or awaiting repair. Carriage repairs show some increase except on the Southern, but again that company has fewer disabled vehicles than in 1934. Wagon repairs are slightly up all round, but the numbers under repair are fewer except on the L.M.S.R.

*(Text continued on page 840)*

Table 12—Locomotive Running Expenses, Abstract "C" (Summary), Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
<b>TRAIN-MILES (PER STATISTICAL RETURN XIIc)—</b>	1935	1934	1935	1934	1935	1934	1935	1934
Steam, tender and tank engines	147,312,949	144,356,893	110,229,650	108,721,562	64,666,980	63,028,144	37,331,443	38,543,671
Electric traction	6,061,967	6,018,564	1,426,946	1,439,806	352,440	351,179	28,300,934	25,899,658
Steam, petrol, &c., rail motors	289,438	406,478	2,718,535	2,713,048	330,345	274,027	8,308	26,978
<b>Total</b>	<b>153,664,354</b>	<b>150,781,935</b>	<b>114,375,131</b>	<b>112,874,416</b>	<b>65,349,765</b>	<b>63,653,350</b>	<b>65,640,685</b>	<b>64,470,307</b>
<b>STOCK OF ENGINES, &amp;c. (PER STATISTICAL RETURN II)—</b>								
Engines	7,894	8,004	6,789	6,848	3,593	3,608	1,900	1,919
Electric power vehicles	250	250	95*	*95	20	20	1,155	1,059
Petrol power, &c., rail motor vehicles	12	25	94†	†95	7	21	1	1
<b>Total</b>	<b>8,156</b>	<b>8,279</b>	<b>6,978</b>	<b>7,038</b>	<b>3,620</b>	<b>3,649</b>	<b>3,056</b>	<b>2,979</b>
<b>SUPERINTENDENCE (SALARIES AND OFFICE EXPENSES)</b>	<b>£300,080</b>	<b>£298,421</b>	<b>£257,184</b>	<b>£257,099</b>	<b>£110,907</b>	<b>£111,628</b>	<b>£51,542</b>	<b>£50,891</b>
Per train-mile	0·47d.	0·47d.	0·54d.	0·55d.	0·41d.	0·42d.	0·19d.	0·19d.
Per engine, &c.	£36·79	£36·05	£36·86	£36·53	£30·64	£30·59	£16·93	£17·08
<b>WORKING—</b>								
<i>Steam train</i>	£11,809,906	£11,674,138	£9,395,865	£9,201,248	£4,985,839	£4,887,866	£3,054,388	£3,107,037
Per train-mile	19·20d.	19·35d.	19·97d.	19·82d.	18·41d.	18·53d.	19·63d.	19·35d.
Per engine	£1,494	£1,454	£1,365	£1,325	£1,385	£1,347	£1,607	£1,619
<i>Electric train</i>	£401,109	£405,682	£56,624	£65,549	£45,034	£44,921	£1,023,710	£907,653
Per train-mile (electric traction)	15·88d.	16·18d.	9·52d.	10·93d.	30·68d.	30·70d.	8·68d.	8·41d.
Per vehicle (electric traction)	£1,604	£1,623	£596	£690	£2,252	£2,246	£886	£857
<i>Petrol rail motor</i>	—	—	—	—	—	—	—	£221
Per train-mile	—	—	—	—	—	—	—	1·96d.
Per vehicle	—	—	—	—	—	—	—	£221
Transfer to or from Renewal Account	Cr. £6,684	Cr. £6,917	Cr. £29,497	£35,973	—	—	—	£2,119
Balance of engine power supplied to and by the company	Cr. £438,216	Cr. £433,877	Cr. £565,920	Cr. £584,610	Cr. £187,255	Cr. £182,153	Cr. £52,406	Cr. £49,238
<b>Total of abstract</b>	<b>£12,066,203</b>	<b>£11,937,448</b>	<b>£9,114,256</b>	<b>£8,975,260</b>	<b>£4,954,525</b>	<b>£4,862,262</b>	<b>£4,077,234</b>	<b>£4,018,684</b>
Per train-mile (Total)	18·85d.	19·00d.	19·12d.	19·08d.	18·20d.	18·33d.	14·91d.	14·96d.
Per engine, &c. (Total)	£1,479	£1,442	£1,306	£1,275	£1,369	£1,332	£1,334	£1,349
Per cent. of traffic receipts	19·76	19·90	21·25	20·15	19·43	19·40	19·98	19·96

\* Includes 13 electric engines      † Includes 90 steam motor vehicles

Table 13—Locomotive Running Expenses, Abstract "C," Details, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
<b>STEAM TRAIN WORKING—</b>	1935	1934	1935	1934	1935	1934	1935	1934
<i>Wages connected with the running of locomotive engines</i>	£6,825,600	£6,700,444	£5,627,624	£5,529,245	£3,100,195	£3,045,680	£1,659,492	£1,666,835
Per train-mile	11·10d.	11·11d.	11·96d.	11·91d.	11·45d.	11·55d.	10·67d.	10·38d.
Per engine	£863	£835	£818	£796	£861	£839	£873	£869
<i>Fuel</i>	£4,284,820	£4,281,073	£3,220,422	£3,132,761	£1,637,555	£1,592,414	£1,232,890	£1,269,870
Per train-mile	6·97d.	7·10d.	6·84d.	6·75d.	6·05d.	6·04d.	7·92d.	7·91d.
Per engine	£542	£533	£468	£451	£455	£439	£649	£662

(Continued on next page)

Table 13—Locomotive Running Expenses, Abstract "C," Details, Years 1934 and 1935—Continued

Table 14—Traffic Expenses, Abstract "D," Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
Total traffic receipts per Account No. 10	£61,060,027	£59,975,561	£44,784,569	£44,538,488	£25,503,866	£25,069,525	£20,409,127	£20,131,926
Tram mileage per statistical return XIIb	153,404,042	150,486,422	109,549,886	108,053,106	64,804,301	63,371,714	66,774,887	65,574,345
<b>SALARIES AND WAGES—</b>								
Superintendence	£1,180,861	£1,132,992	£1,045,428	£1,023,387	£550,901	£535,970	£359,835	£353,169
Stationmasters and clerks	£4,366,350	£4,334,599	£2,584,395	£2,559,425	£1,288,385	£1,271,511	£903,939	£904,863
Signalmen and gatemen	£1,883,776	£1,880,462	£1,351,465	£1,365,596	£767,362	£771,586	£495,815	£506,901
Ticket collectors, policemen, porters, &c.	£4,075,213	£4,045,727	£2,896,069	£2,875,626	£1,879,006	£1,841,356	£1,394,558	£1,374,909
Guards	£1,534,079	£1,491,953	£1,069,507	£1,053,807	£649,215	£635,762	£431,715	£424,360
Total	£13,040,279	£12,885,733	£8,946,864	£8,877,841	£5,134,869	£5,056,185	£3,585,862	£3,564,202
Per cent. on total traffic receipts	21.36	21.48	19.98	19.93	20.13	20.17	17.57	17.70
<b>FUEL, LIGHTING, WATER AND GENERAL STORES</b>	£514,157	£516,725	£442,549	£420,582	£200,241	£195,188	£182,245	£188,613
Per cent. on total traffic receipts	0.84	0.86	0.99	0.94	0.79	0.78	0.89	0.94
<b>CLOTHING</b>	£114,460	£105,608	£81,374	£83,666	£61,407	£59,429	£56,961	£82,655
Per cent. on total traffic receipts	0.19	0.18	0.18	0.19	0.24	0.24	0.28	0.41
<b>PRINTING, ADVERTISING, STATIONERY, STAMPS AND TICKETS</b>	£531,052	£549,866	£383,882	£373,316	£207,153	£196,804	£231,920	£213,852
Per cent. on total traffic receipts	0.87	0.92	0.86	0.84	0.81	0.78	1.14	1.06
<b>WAGON COVERS, &amp;c.</b>	£156,580	£159,453	£110,873	£113,783	£52,939	£57,261	£19,149	£19,426
Per cent. on total traffic receipts	0.26	0.27	0.25	0.26	0.21	0.23	0.09	0.10
<b>EXPENSES OF JOINT STATIONS AND JUNCTIONS</b>	£24,050	£32,047	Cr. £15,593	Cr. £15,482	£2,888	£1,310	Cr. £8,309	Cr. £7,017
Per cent. on total traffic receipts	0.04	0.05	0.04	0.03	0.01	0.01	0.04	0.04
<b>CLEANSING, LUBRICATING AND LIGHTING OF VEHICLES</b>	£728,322	£714,126	£465,049	£460,923	£271,756	£266,170	£201,247	£199,432
Per cent. on total traffic receipts	1.19	1.19	1.04	1.04	1.07	1.06	0.99	0.99
<b>SHUNTING EXPENSES (OTHER THAN MECHANICAL)—</b>								
Wages	£1,379,655	£1,364,517	£969,496	£959,710	£612,465	£600,087	£257,034	£255,444
Other expenses	£18,113	£20,108	£31,895	£30,684	£5,846	£5,657	£4,693	£4,648
Total	£1,397,767	£1,384,625	£1,001,391	£990,394	£618,311	£605,744	£261,727	£260,092
Per cent. on total traffic receipts	2.29	2.31	2.24	2.22	2.42	2.42	1.28	1.29
<b>WORKING OF STATIONARY ENGINES, HOISTS, CRANES, &amp;c.</b>	£375,357	£373,364	£201,051	£204,217	£70,514	£75,277	£66,957	£69,563
Per cent. on total traffic receipts	0.61	0.62	0.45	0.46	0.28	0.30	0.33	0.35
<b>RAILWAY CLEARING HOUSE EXPENSES</b>	£193,417	£196,149	£150,605	£148,806	£89,285	£95,393	£45,887	£46,600
Per cent. on total traffic receipts	0.32	0.33	0.34	0.33	0.35	0.38	0.23	0.23
<b>PASSENGER TICKET AGENTS' COMMISSION</b>	£88,102	£87,356	£65,552	£63,541	£36,086	£35,122	£68,104	£64,204
Per cent. on total traffic receipts	0.14	0.14	0.14	0.14	0.14	0.14	0.33	0.32
<b>TRANSPORTATION BY ROAD VEHICLES</b>	£819,354	£824,855	£463,673	£444,793	£343,538	£333,873	£174,325	£173,449
Per cent. on total traffic receipts	1.34	1.37	1.03	1.00	1.34	1.33	0.85	0.86
<b>MISCELLANEOUS EXPENSES</b>	£179,463	£171,707	£129,755	£130,639	£66,489	£66,011	£71,835	£74,735
Per cent. on total traffic receipts	0.29	0.29	0.29	0.29	0.26	0.26	0.35	0.37
<b>COAL, &amp;c., TIPPING EXPENSES</b>	£33,360	£46,148	—	—	—	—	—	—
Per cent. on total traffic receipts	0.05	0.08	—	—	—	—	—	—

(Continued on next page)

Table 14—Traffic Expenses, Abstract "D," Years 1934 and 1935—Continued

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
TRANSFER TO OR FROM RENEWAL ACCOUNT	Cr. £27,477	Cr. £35,786	£21,346	£19,751	£3,837	£5,520	Cr. £5,123	Cr. £4,824
Per cent. on total traffic receipts	0.04	0.06	0.05	0.04	0.02	0.02	0.02	0.02
Total of Abstract	£18,168,244	£18,011,976	£12,448,371	£12,316,669	£7,159,312	£7,049,287	£4,952,788	£4,944,982
Per cent. on total traffic receipts	29.75	30.03	27.80	27.65	28.07	28.12	24.27	24.56
Per train-mile	28.42d.	28.73d.	27.27d.	27.36d.	26.51d.	26.70d.	17.80d.	18.10d.

Table 15—General Charges, Abstract "E," Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
GROSS RECEIPTS OF THE WHOLE UNDERTAKING (EXCLUDING MISCELLANEOUS AS PER ACCOUNT NO. 8)	£69,455,245	£68,180,325	£51,818,934	£51,376,257	£29,788,622	£29,280,383	£23,517,026	£23,152,749
TRAIN MILEAGE PER STATISTICAL RETURN XIIIB	153,404,042	150,486,422	109,549,886	108,053,106	64,804,301	63,371,714	66,774,887	65,574,345
DIRECTORS' FEES VOTED BY SHAREHOLDERS	£25,000	£26,250	£21,000	£21,000	£22,230	£22,124	£17,550	£17,000
Per cent. on gross receipts	0.04	0.04	0.04	0.04	0.08	0.08	0.08	0.07
FEES PAID TO AND EXPENSES OF DIRECTORS ON JOINT COMMITTEES NOT INCLUDED IN ABSTRACT "J"	£282	£285	£199	£200	£434	£427	£742	£742
AUDITORS AND PUBLIC ACCOUNTANTS	£4,684	£4,686	£2,646	£2,596	£2,930	£3,000	£2,628	£2,628
Per cent. on gross receipts	0.01	0.01	—	—	0.01	0.01	0.01	0.01
SALARIES OF SECRETARY, GENERAL MANAGER, ACCOUNTANT AND CLERKS	£409,200	£458,627	£431,884	£436,111	£209,801	£205,741	£223,400	£220,624
Per cent. on gross receipts	0.67	0.67	0.83	0.85	0.70	0.70	0.95	0.95
OFFICE EXPENSES OF SECRETARY, GENERAL MANAGER, ACCOUNTANT AND CLERKS	£52,632	£54,029	£51,245	£49,475	£21,971	£22,640	£25,329	£24,331
Per cent. on gross receipts	0.07	0.08	0.10	0.10	0.08	0.08	0.11	0.11
RATING EXPENSES	£17,083	£16,820	£12,334	£9,243	£5,550	£6,096	£7,525	£7,487
Per cent. on gross receipts	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.03
INSURANCE	£47,896	£39,707	£75,633	£76,194	—	—	£29,392	£30,116
Per cent. on gross receipts	0.07	0.06	0.15	0.15	—	—	0.13	0.13
SUPERANNUATION AND BENEVOLENT FUNDS, PENSIONS, &c.	£1,777,868	£1,584,581	£760,633	£767,246	£816,095	£780,867	£510,337	£506,455
Per cent. on gross receipts	2.56	2.32	1.47	1.49	2.74	2.67	2.17	2.19
SUBSCRIPTIONS AND DONATIONS	£46,899	£46,143	£4,687	£4,857	£6,417	£6,465	£3,636	£4,139
Per cent. on gross receipts	0.07	0.07	0.01	0.01	0.02	0.02	0.02	0.02
MISCELLANEOUS EXPENSES	£103,762	£95,583	£40,060	£39,823	£24,798	£25,508	£24,126	£21,470
Per cent. on gross receipts	0.15	0.14	0.08	0.08	0.08	0.09	0.10	0.09
Proportion transferred to other accounts	Cr. £218,075	Cr. £201,757	Cr. £144,686	Cr. £145,573	Cr. £148,685	Cr. £142,842	Cr. £97,614	Cr. £97,531
Total of abstract	£2,327,231	£2,124,954	£1,255,635	£1,261,172	£961,541	£930,026	£747,051	£737,460
Per cent. on gross receipts	3.35	3.12	2.42	2.46	3.23	3.18	3.18	3.18
Per train-mile	3.64d.	3.39d.	2.75d.	2.80d.	3.56d.	3.52d.	2.69d.	2.70d.

Table 16—Receipts and Expenses in Connection with Collection and Delivery of Parcels and Goods, Account No. 16, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
<b>GROSS RECEIPTS—</b>	1935	1934	1935	1934	1935	1934	1935	1934
Passenger train traffic	£130,854	£116,026	£105,404	£96,657	£90,309	£84,352	£98,596	£89,066
Goods train traffic	£1,995,203	£1,976,179	£1,086,477	£1,039,647	£896,262	£864,246	£400,056	£392,534
Miscellaneous	£7,584	£4,067	£16,123	£15,274	£10,154	£13,269	£9,262	£10,857
Total	£2,133,641	£2,096,272	£1,208,004	£1,151,578	£996,725	£961,867	£507,914	£492,457
<b>NO. OF HORSES FOR ROAD VEHICLES, PER STATISTICAL RETURN III</b>	8,196	8,123	2,483	2,901	1,787	1,911	781	851
<b>GOODS AND PARCELS, ROAD VEHICLES, PER STATISTICAL RETURN III—</b>								
Road motors for goods and parcels	2,727	2,499	3,033	2,791	2,010	1,860	563	505
Horse wagons and carts	16,000	16,144	5,593	6,239	3,144	3,335	1,167	1,222
Miscellaneous	919	871	869	662	556	345	141	92
Total	19,646	19,514	9,495	9,692	5,710	5,540	1,871	1,819
<b>SUPERINTENDENCE</b>	£47,804	£47,037	£26,746	£21,352	£26,129	£24,160	£4,589	£4,725
Per cent. on gross receipts	2.24	2.24	2.21	1.86	2.62	2.51	0.93	0.96
<b>MAINTENANCE OF BUILDINGS</b>	£29,119	£28,994	£16,061	£12,892	£9,244	£10,196	£1,812	£1,774
Per cent. on gross receipts	1.36	1.38	1.33	1.12	0.93	1.06	0.35	0.36
<b>MAINTENANCE OF MOTOR VEHICLES</b>	£219,892	£289,439	£125,717	£91,551	£176,311	£139,010	£63,296	£44,605
Per motor vehicle	£81	£116	£41	£33	£88	£75	£112	£88
Per cent. on gross receipts	10.31	13.81	10.41	7.95	17.69	14.45	12.46	9.06
<b>MAINTENANCE OF HORSES</b>	£484,331	£475,966	£151,663	£181,225	£126,258	£127,670	£61,586	£67,281
Per horse	£59	£59	£61	£62	£71	£67	£79	£79
Per cent. on gross receipts	22.70	22.70	12.56	15.74	12.67	13.27	12.12	13.66
<b>MAINTENANCE OF HORSE VEHICLES</b>	£143,198	£142,266	£35,565	£44,679	£20,578	£20,549	£11,107	£13,107
Per horse vehicle	£9	£9	£6	£7	£7	£6	£10	£11
Per cent. on gross receipts	6.71	6.78	2.94	3.88	2.06	2.14	2.19	2.66
<b>TRAFFIC EXPENSES</b>	£1,790,266	£1,747,161	£1,090,129	£1,064,957	£761,549	£732,466	£312,133	£311,049
Per cent. on gross receipts	83.91	83.35	90.24	92.48	76.41	76.15	61.45	63.16
<b>AMOUNT PAID FOR HIRED CARGAGE</b>	£361,572	£373,636	£227,516	£212,047	£186,645	£187,242	£127,488	£118,377
Per cent. on gross receipts	16.95	17.82	18.83	18.41	18.73	19.47	25.10	24.04
<b>GENERAL CHARGES</b>	£76,321	£72,019	£28,240	£30,764	£37,234	£35,535	£13,368	£13,051
Per cent. on gross receipts	3.58	3.44	2.34	2.67	3.73	3.69	2.63	2.65
<b>RATES, INCLUDING RATE RELIEF</b>	£16,040	£25,804	£14,866	£15,115	£6,304	£6,533	£4,064	£3,932
Per cent. on gross receipts	0.75	1.23	1.23	1.31	0.63	0.68	0.80	0.80
<b>LICENCE DUTY</b>	£115,600	£110,201	£93,811	£86,294	£85,099	£83,597	£28,843	£28,382
Per cent. on gross receipts	5.42	5.26	7.77	7.49	8.54	8.69	5.68	5.76
<b>MISCELLANEOUS</b>	£60,417	£54,501	£45,676	£45,873	£29,248	£26,325	£10,207	£7,992
Per cent. on gross receipts	2.83	2.60	3.78	3.98	2.93	2.74	2.01	1.62
Transfer to or from Renewal Account	£4,516	Cr. £53,424	£137,060	£117,697	£9,971	£32,589	£2,927	£14,449
<b>CARTAGE PERFORMED FOR AND BY OTHER COMPANIES</b>	Cr. £820,291	Cr. £834,622	Cr. £459,301	Cr. £450,179	Cr. £347,293	Cr. £340,770	Cr. £178,430	Cr. £179,124
Per cent. on gross receipts	38.45	39.81	38.02	39.09	34.84	35.43	35.13	36.37
<b>TOTAL OF ABSTRACT</b>	£2,528,785	£2,478,978	£1,533,749	£1,474,267	£1,127,277	£1,085,101	£462,990	£449,601
Per cent. on gross receipts	118.52	118.25	126.97	128.02	113.10	112.81	91.16	91.29

Table 17—Receipts and Payments in respect of Running Power Expenses, Abstract "G," Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
Passenger train receipts, per Account No. 10	£25,142,375	£24,739,965	£16,466,267	£16,161,235	£10,709,704	£10,569,140	£15,626,365	£15,161,250
<b>PASSENGER TRAIN TRAFFIC—</b>								
Receipts .....	£79,721	£77,259	£106,899	£104,900	£70,329	£70,723	£5,036	£5,780
Per cent. on passenger train receipts	0.32	0.31	0.65	0.65	0.66	0.67	0.03	0.03
Payments .....	£35,392	£36,067	£60,708	£58,546	£13,051	£13,824	£3,403	£3,599
Per cent. on passenger train receipts	0.14	0.15	0.37	0.36	0.12	0.13	0.02	0.02
Goods train receipts, per Account No. 10	£35,917,652	£35,235,596	£28,318,302	£28,377,253	£14,794,162	£14,500,385	£4,782,762	£4,967,676
<b>GOODS TRAIN TRAFFIC—</b>								
Receipts .....	£85,534	£91,827	£142,993	£140,915	£104,275	£104,251	£37,031	£38,668
Per cent. on goods train receipts	0.24	0.26	0.50	0.50	0.70	0.72	0.77	0.78
Payments .....	£121,879	£121,347	£59,471	£62,620	£17,934	£18,282	£46,067	£48,061
Per cent. on goods train receipts	0.34	0.34	0.21	0.22	0.12	0.13	0.96	0.97
<b>TOTAL TRAFFIC RECEIPTS, PER ACCOUNT NO. 10</b>	£61,060,027	£59,975,561	£44,784,569	£44,538,488	£25,503,866	£25,069,525	£20,409,127	£20,131,926
<b>TOTAL—</b>								
Receipts .....	£165,255	£169,085	£249,892	£245,815	£174,604	£174,974	£42,067	£43,448
Per cent. on total traffic receipts	0.27	0.28	0.56	0.55	0.68	0.70	0.21	0.22
Payments .....	£157,271	£157,415	£120,179	£121,174	£30,985	£32,106	£49,470	£51,660
Per cent. on total traffic receipts	0.26	0.26	0.27	0.27	0.12	0.13	0.24	0.26

Table 18—Abstract "H," Mileage, Demurrage and Wagon Hire, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
<b>MILEAGE AND DEMURRAGE—</b>								
<i>Passenger train vehicles—</i>								
Receipts .....	£30,534	£33,471	£44,705	£39,175	£3,966	£3,921	£21,040	£20,359
Expenditure .....	64,042	69,611	19,056	18,631	5,111	4,472	25,075	27,192
Balance .....	Dr. 33,508	Dr. 36,140	Cr. 25,649	Cr. 20,544	Dr. 1,145	Dr. 551	Dr. 4,035	Dr. 6,833
<i>Goods train vehicles—</i>								
Receipts .....	39,394	36,652	183,164	182,816	696	892	60,053	60,697
Expenditure .....	2,167	3,773	8,153	8,467	72,365	69,023	75,295	80,164
Balance .....	Cr. 37,227	Cr. 32,879	Cr. 175,011	Cr. 174,349	Dr. 71,669	Dr. 68,131	Dr. 15,242	Dr. 19,467
<b>HIRE—</b>								
<i>Passenger train vehicles—</i>								
Receipts .....	5,729	4,761	11,149	11,180	295	347	888	913
Expenditure .....	855	—	188	359	—	—	95	—
Balance .....	Cr. 4,874	Cr. 4,761	Cr. 10,961	Cr. 10,821	Cr. 295	Cr. 347	Cr. 793	Cr. 913
<i>Goods train vehicles—</i>								
Receipts .....	2,939	589	41,612	39,678	2,180	2,666	1,349	957
Expenditure .....	138	176	57,162	37,331	6,151	6,149	1,121	261
Balance .....	Cr. 2,801	Cr. 413	Dr. 15,550	Cr. 2,347	Dr. 3,971	Dr. 3,483	Cr. 228	Cr. 696
<b>TOTAL—</b>								
Receipts .....	78,596	75,473	280,630	272,850	7,136	7,826	83,329	82,925
Expenditure .....	67,201	73,560	84,559	64,788	83,628	79,644	101,585	107,616
Balance .....	Cr. 11,395	Cr. 1,913	Cr. 196,071	Cr. 208,062	Dr. 76,492	Dr. 71,818	Dr. 18,256	Dr. 24,691

Table 19—Receipts and Expenditure in respect of Steamboats, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
<b>GROSS RECEIPTS—</b>								
<i>Passengers</i>	1935 £470,650	1934 £439,492	1935 £390,055	1934 £356,163	1935 £127,858	1934 £126,233	1935 £661,532	1934 £685,295
Per cent. of receipts	33.69	33.25	51.91	50.89	40.15	41.43	59.80	60.95
<i>Parcels and Mails</i>	£158,279	£159,327	£40,453	£44,256	£45,214	£45,510	£232,022	£227,346
Per cent. of receipts	11.33	12.05	5.38	6.33	14.20	14.93	20.98	20.22
<i>Merchandise</i>	£612,104	£581,192	£261,351	£242,875	£120,475	£111,305	£145,822	£148,384
Per cent. of receipts	43.81	43.97	34.78	34.70	37.84	36.53	13.18	13.20
<i>Livestock</i>	£109,220	£94,194	£5,540	£2,118	£8,317	£4,584	£4,362	£3,960
Per cent. of receipts	7.82	7.13	0.74	0.30	2.61	1.50	0.39	0.35
<i>Miscellaneous</i>	£46,850	£47,636	£54,034	£54,459	£16,550	£17,099	£62,440	£59,394
Per cent. of receipts	3.35	3.60	7.19	7.78	5.20	5.61	5.65	5.28
<b>Total</b>	<b>£1,397,103</b>	<b>£1,321,841</b>	<b>£751,434</b>	<b>£699,871</b>	<b>£318,414</b>	<b>£304,731</b>	<b>£1,106,178</b>	<b>£1,124,369</b>
<b>EXPENDITURE—</b>								
<i>Salaries and wages</i>	£476,024	£455,507	£293,964	£291,841	£102,752	£97,838	£340,648	£344,947
Per cent. of expenditure	41.88	41.67	36.93	36.60	34.13	32.76	34.09	34.42
<i>Fuel</i>	£163,211	£157,765	£128,628	£119,531	£56,571	£60,253	£159,220	£159,067
Per cent. of expenditure	14.36	14.43	16.16	14.99	18.79	20.17	15.93	15.87
<i>Stores, lubricants, water, &amp;c.</i>	£24,172	£20,775	£19,048	£19,457	£6,536	£6,413	£31,473	£31,194
Per cent. of expenditure	2.13	1.90	2.39	2.44	2.17	2.15	3.15	3.11
<i>Renewals</i>	£208,268	£398,524	—	—	—	£11,978	£351,801	£32,866
Per cent. of expenditure	18.32	36.45	—	—	—	4.01	35.21	3.28
<i>Repairs</i>	£79,960	£75,883	£67,329	£75,896	£20,600	£23,125	£126,592	£124,390
Per cent. of expenditure	7.03	6.94	8.46	9.52	6.84	7.74	12.66	12.41
<i>Insurance</i>	£25,118	£26,763	£25,038	£26,117	£7,915	£8,361	£15,759	£15,563
Per cent. of expenditure	2.21	2.45	3.15	3.27	2.63	2.80	1.58	1.55
<i>Harbour fees and Light dues</i>	£130,257	£123,118	£64,708	£69,386	£41,446	£37,178	£92,102	£93,027
Per cent. of expenditure	11.46	11.26	8.13	8.70	13.77	12.45	9.21	9.28
<i>General Charges</i>	£42,245	£37,634	£15,882	£15,771	£10,640	£10,552	£38,403	£39,522
Per cent. of expenditure	3.72	3.44	2.00	1.98	3.53	3.53	3.85	3.95
<i>Miscellaneous</i>	£74,496	£69,455	£90,036	£90,595	£15,975	£16,484	£74,884	£62,780
Per cent. of expenditure	6.55	6.36	11.31	11.36	5.31	5.52	7.54	6.27
<b>TOTAL WORKING EXPENSES</b>	<b>£1,223,760</b>	<b>£1,365,424</b>	<b>£704,633</b>	<b>£708,594</b>	<b>£262,444</b>	<b>£272,183</b>	<b>£1,230,882</b>	<b>£903,356</b>
Per cent. of expenditure	107.66	124.90	88.53	88.86	87.17	91.13	123.22	90.14
Transfer to or from Renewal Account	Cr. £87,109	Cr. £272,160	£91,275	£88,815	£38,640	£26,482	Cr. £231,938	£98,784
Per cent. of expenditure	7.66	24.90	11.47	11.14	12.83	8.87	23.22	9.86
<b>TOTAL EXPENDITURE</b>	<b>£1,136,651</b>	<b>£1,093,264</b>	<b>£795,908</b>	<b>£797,409</b>	<b>£301,084</b>	<b>£298,665</b>	<b>£998,944</b>	<b>£1,002,140</b>
Per cent. on gross receipts	81.36	82.71	105.92	113.94	94.56	98.01	90.30	89.13
<b>BALANCE—</b>								
<i>Profit</i>	£260,452	£228,577	loss £44,474	loss £97,538	£17,330	£6,066	£107,234	£122,229
Per cent. on gross receipts	18.64	17.29	—	—	5.44	1.99	9.70	10.87

(Continued from page 832)

**Tables XII and XIII.—Locomotive Running Expenses**

Although each company has an increase in its total locomotive running expenses, this increase is clearly due to the additional train mileage run, as the cost of working per train-mile shows in the majority of cases a downward tendency. On the Southern steam costs per mile have increased from 19.3d. to 19.6d. and electric costs from 8.4d. to 8.6d., but the combined figures show a reduction from 14.9d. to 14.9d. due to the increased proportion of electric train miles. Petrol power working costs have disappeared as a separate item of expenditure, but the total debit under this head in 1934 was only £221.

**Table XIV.—Traffic Expenses**

It is in this table that the effect of the partial restoration of the wages cuts is most marked, and it is not surprising that nearly every item under the head of salaries and wages shows an increase. In signalmen and gatemen, however, all companies except the L.M.S.R. have effected slight reductions in cost. The Southern company has reduced its clothing bill by about £26,000, but the other items of expenditure in the abstract do not show any very marked variation. The total expenditure in relation to traffic receipts shows some reduction except on the L.N.E.R.

**Table XV.—General Charges**

Practically all the increase in this abstract is attributable to increases in contributions to superannuation and benevolent funds and pensions, which on the L.M.S.R. amount to nearly £200,000, and £35,000 on the G.W.R. The expenditure of the L.N.E.R. in this abstract is decidedly lower than that of the other companies in relation to gross receipts.

Table 20—Receipts and Expenditure in respect of Canals, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
MILES OF NAVIGATION, PER STATISTICAL RETURN V.	536	537	246	246	211	211	4½	4½
Gross receipts	£117,740	£124,812	£37,067	£36,052	£13,894	£14,094	£1,890	£1,601
Per mile of navigation	£220	£233	£151	£147	£66	£67	£420	£356
EXPENDITURE—								
Superintendence	£2,995	£3,170	£406	£350	£194	£197	£140	£138
Wages of toll clerks, lock-keepers, &c.	£11,679	£11,722	£4,649	£4,205	£442	£462	£199	£143
Maintenance of canals and water supply	£94,462	£94,793	£38,227	£33,654	£28,139	£32,884	£1,081	£864
Rates, including rate relief	£8,959	£8,747	£4,558	£4,616	£1,821	£1,736	£46	£48
Miscellaneous	£12,248	£11,183	£2,357	£1,910	£1,308	£1,366	£20	£22
General charges	£5,481	£5,129	£1,006	£972	£700	£728	£29	£29
Transfer from Renewal Account	Cr. £1,102	Cr. £8,544	—	—	—	—	—	—
TOTAL	£134,722	£126,200	£51,203	£45,707	£32,604	£37,373	£1,515	£1,244
Per mile of navigation	£251	£235	£208	£186	£155	£177	£337	£276
Per cent. on gross receipts	114	101	138	127	235	265	80	78
BALANCE—								
Profit	—	—	—	—	—	—	£375	£357
Loss	£16,982	£1,388	£14,136	£9,655	£18,710	£23,279	—	—

**Table XVI.—Receipts and Expenses in Connection with Collection and Delivery of Parcels and Goods**

It will be seen from this table that receipts have increased all round, but expenses have increased in like proportion and the ratio of working expenses to receipts has remained practically constant. The Southern company alone continues to show a credit balance. The L.M.S.R. has increased its stock of horses, whilst at the same time increasing its number of motors. The other three companies have also added to their number of motor vehicles whilst reducing their horse stock. There is a general reduction in the number of horse vehicles. The L.M.S.R. has reduced its maintenance cost per motor vehicle from £116 to £81 but the other companies' costs have increased especially on the Southern. Horse and horse-vehicle maintenance costs do not show much change. As the number of horses and vehicles shown in this table presumably includes those used for Road Transport, a more accurate figure of cost per vehicle, &c., would perhaps be obtained by dividing the aggregate costs shown in Tables 16 and 21 by the appropriate number of units. If this is done the comparative average adjusted costs of maintaining motor vehicles are as follow :—

	1935	1934
L.M.S.R.	£109	£144
L.N.E.R.	47	40
G.W.R.	94	80
S.R.	117	93

The cost of maintenance of horses and horse vehicles shown in Table 21 is so small, in fact the Southern company has no expenditure under these heads, that the figures given in Table 16 do not require adjustment.

Traffic expenses which form approximately two-thirds of the total cost of the abstract have naturally increased all round.

**Table XVII.—Receipts and Payments in Respect of Running Power Expenses**

Changes in receipts and payments in respect of running

powers are very slight and in relation to the traffic receipts the variation is only very trifling.

Table XVIII.—Mileage, Demurrage and Wagon Hire

The principal change in this abstract is an increased payment of £20,000 by the L.N.E.R. for the hire of goods train vehicles, and its total credit balance is reduced by £12,000. The L.M.S.R. on the other hand has increased its credit balance by nearly £10,000. The G.W.R. debit balance is increased by £5,000, and that of the Southern reduced by £6,000.

Table XIX.—Receipts and Expenditure in Respect of Steamboats

The receipts of all companies except the Southern show an improvement. The L.M.S.R. has spent £190,000 less on renewals, and in consequence has drawn upon the reserve fund to a proportionately smaller extent. Its net receipts have increased by £32,000. The L.N.E.R. with £52,000 more receipts and a slightly reduced working expenditure

has reduced its loss on working by £53,000. The G.W.R. has £14,000 additional receipts and £10,000 less expenditure, but has transferred an additional £12,000 to reserve in comparison with 1934. The Southern has spent £352,000 on renewals as compared with £33,000 in 1934, and also shows an increase of £12,000 in miscellaneous expenditure and instead of a transfer of £99,000 to reserve it has withdrawn £232,000 therefrom. Its net receipts are £15,000 less than they were a year ago.

Table XX.—Receipts and Expenditure in Respect of  
Canals

The receipts of the L.M.S.R. are down by £7,000; those of the other companies show little change. The expenses of both the L.M.S.R. and L.N.E.R. have risen, with the result that the L.M.S.R. loss in working has increased by over £15,000 and that of the L.N.E.R. by £4,500. The loss on the G.W.R. has been reduced by £4,500.

(Text continued on page 844)

**Table 21—Receipts and Expenditure in respect of Road Transport, Years 1934 and 1935**

Table 22—Receipts and Expenditure in Respect of Docks, Harbours and Wharves, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
<b>GROSS RECEIPTS—</b>								
<i>Harbour and light dues</i>	1935	1934	1935	1934	1935	1934	1935	1934
<i>Per cent. of receipts</i>	£63,410	£63,294	£23,241	£22,013	£28,591	£26,931	£67,777	£68,731
<i>Dock dues on ships</i>	7.00	7.26	0.88	0.83	1.47	1.36	6.16	6.64
<i>Per cent. of receipts</i>	£76,035	£75,561	£495,150	£478,522	£463,280	£476,396	£269,930	£258,739
<i>Dock dues on goods</i>	8.40	8.67	18.65	18.08	23.79	24.13	24.53	24.99
<i>Per cent. of receipts</i>	£118,301	£112,291	£287,823	£289,172	£420,932	£430,253	£73,248	£70,346
<i>Dock dues on passengers</i>	13.06	12.88	10.84	10.92	21.61	21.80	6.66	6.80
<i>Per cent. of receipts</i>	£1,209	£158	£459	£381	£7,986	£8,110	£20,525	£18,100
<i>Wharf and pier dues</i>	0.13	0.02	0.02	0.01	0.41	0.41	1.87	1.75
<i>Per cent. of receipts</i>	£17,067	£17,162	£125,878	£126,046	£8,279	£8,736	£25,529	£24,578
<i>Dock railways</i>	1.89	1.97	4.74	4.76	0.43	0.44	2.33	2.37
<i>Per cent. of receipts</i>	£162,096	£157,638	£467,099	£485,160	£93,334	£94,851	£69,986	£66,836
<i>Craneage and other services</i>	44.90	44.56	36.03	36.06	40.45	40.32	37.43	35.33
<i>Per cent. of receipts</i>	£406,615	£388,498	£956,742	£954,577	£787,891	£795,922	£411,839	£365,761
<i>Graving docks</i>	1.01	1.14	1.50	1.46	0.47	0.34	4.25	4.91
<i>Per cent. of receipts</i>	£9,114	£9,959	£39,947	£38,771	£9,206	£6,642	£46,701	£50,860
<i>Warehousing</i>	1.09	0.92	1.52	1.62	0.64	0.49	0.87	1.03
<i>Per cent. of receipts</i>	£9,855	£8,049	£40,457	£42,792	£12,546	£9,697	£9,563	£10,650
<i>Rents</i>	2.85	2.76	4.01	3.88	3.86	3.96	5.06	5.17
<i>Per cent. of receipts</i>	£25,829	£24,042	£106,613	£102,727	£75,141	£78,262	£55,640	£53,525
<i>Miscellaneous</i>	1.77	1.74	4.22	4.05	2.08	1.94	4.48	4.55
<i>Per cent. of receipts</i>	£16,038	£15,154	£112,157	£107,032	£40,597	£38,226	£49,247	£47,112
<b>Total</b>	£905,569	£871,806	£2,655,566	£2,647,193	£1,947,783	£1,974,026	£1,099,985	£1,035,228
<b>EXPENDITURE—</b>								
<i>Superintendence</i>	£41,538	£39,853	£76,634	£75,651	£58,572	£58,706	£14,939	£15,247
<i>Per cent. of expenditure</i>	4.66	4.50	3.02	3.03	3.08	3.11	1.94	2.05
<i>Maintenance</i>	£140,977	£110,544	£442,470	£377,046	£395,529	£507,258	£85,595	£90,580
<i>Per cent. of expenditure</i>	15.83	12.47	17.42	15.11	20.80	26.91	11.12	12.18
<i>Dredging</i>	£112,874	£89,002	£106,811	£117,960	£85,332	£69,695	£101,538	£77,050
<i>Per cent. of expenditure</i>	12.67	10.05	4.20	4.73	4.49	3.70	13.19	10.36
<i>Operating expenses</i>	£530,040	£495,374	£1,352,520	£1,329,176	£942,063	£951,492	£418,755	£381,191
<i>Per cent. of expenditure</i>	59.51	55.90	53.23	53.25	49.55	50.48	54.38	51.24
<i>Rates, including Rate Relief</i>	£30,233	£53,777	£143,603	£137,590	£207,949	£199,875	£26,407	£31,337
<i>Per cent. of expenditure</i>	3.40	6.07	5.65	5.51	10.94	10.60	3.43	4.21
<i>General charges</i>	£30,857	£28,079	£60,563	£60,651	£83,031	£79,231	£37,757	£37,369
<i>Per cent. of expenditure</i>	3.46	3.17	2.38	2.43	4.37	4.20	4.90	5.02
<i>Miscellaneous</i>	£35,216	£69,788	£125,534	£122,669	£85,744	£75,102	£48,871	£42,555
<i>Per cent. of expenditure</i>	3.95	7.88	4.94	4.92	4.51	3.98	6.35	5.72
<i>Transfer to or from Suspense Account</i>	Cr. £31,000	Cr. £342	£232,615	£275,108	£42,880	Cr. £56,227	£36,113	£68,554
<i>Per cent. of expenditure</i>	3.48	0.04	9.16	11.02	2.26	2.98	4.69	9.22
<b>Total</b>	£890,735	£886,165	£2,540,750	£2,495,851	£1,901,100	£1,885,132	£769,975	£743,883
<b>Per cent. on gross receipts</b>	98.36	101.65	95.68	94.28	97.60	95.50	70.00	71.86
<b>Net receipts from docks, harbours and wharves</b>	£14,834	loss £14,359	£114,816	£151,342	£46,683	£88,893	£330,010	£291,345

Table 23—Receipts and Expenditure in Respect of Hotels and of Refreshment Rooms and Cars where Catering is carried on by the Company, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
<b>RECEIPTS—</b>								
Total receipts from hotels and sale of provisions, &c., in the refreshment rooms and cars	£2,861,859	£2,833,028	£1,839,018	£1,756,465	£699,457	£666,849	£128,923	£108,772
<b>EXPENDITURE—</b>								
<i>Salaries and wages</i> ....	£589,864	£585,870	£328,611	£319,593	£125,798	£118,387	£21,048	£20,351
Per cent. of expenditure ....	23.76	23.72	19.16	19.59	20.26	20.02	17.09	18.15
Per cent. on gross receipts ....	20.61	20.68	17.87	18.19	17.98	17.75	16.33	18.71
<i>Provisions, wines and spirits consumed</i>	£1,225,008	£1,197,389	£938,056	£893,642	£358,906	£342,976	£55,079	£48,213
Per cent. of expenditure ....	49.35	48.48	54.71	54.79	57.81	57.99	44.71	43.01
Per cent. on gross receipts ....	42.80	42.27	51.01	50.88	51.31	51.44	42.73	44.31
<i>Maintenance of hotels and refreshment rooms and fittings, furniture, &amp;c., of refreshment cars</i>	£253,941	£261,180	£193,062	£161,782	£37,143	£34,044	£24,223	£22,329
Per cent. of expenditure ....	10.23	10.57	11.26	9.92	5.98	5.76	19.66	19.92
Per cent. on gross receipts ....	8.87	9.22	10.50	9.21	5.31	5.11	18.79	20.52
<i>Heating and lighting of hotels and refreshment rooms</i>	£95,878	£93,805	£55,422	£54,334	£18,171	£17,631	£5,703	£5,732
Per cent. of expenditure ....	3.86	3.80	3.23	3.33	2.93	2.98	4.63	5.11
Per cent. on gross receipts ....	3.35	3.31	3.01	3.09	2.60	2.64	4.43	5.27
<i>Rents</i> ....	£40,906	£38,934	£39,693	£39,803	£22,438	£21,277	—	—
Per cent. of expenditure ....	1.65	1.58	2.31	2.44	3.61	3.60	—	—
Per cent. on gross receipts ....	1.43	1.38	2.16	2.27	3.21	3.19	—	—
<i>Rates</i> ....	£64,531	£65,800	£37,284	£36,004	£11,859	£10,228	£3,250	£3,011
Per cent. of expenditure ....	2.60	2.66	2.17	2.21	1.91	1.73	2.64	2.68
Per cent. on gross receipts ....	2.26	2.32	2.03	2.05	1.70	1.53	2.52	2.77
<i>Licence Duty</i> ....	£8,625	£9,799	£7,873	£7,688	£4,013	£3,711	£443	£449
Per cent. of expenditure ....	0.35	0.40	0.46	0.47	0.65	0.63	0.36	0.40
Per cent. on gross receipts ....	0.30	0.35	0.43	0.44	0.57	0.56	0.34	0.41
<i>General Charges</i> ....	£52,196	£47,694	£34,564	£33,220	£11,077	£10,821	£3,228	£3,060
Per cent. of expenditure ....	2.10	1.93	2.02	2.04	1.78	1.83	2.62	2.73
Per cent. on gross receipts ....	1.82	1.68	1.88	1.89	1.58	1.62	2.50	2.81
<i>Miscellaneous</i> ....	£180,423	£181,526	£108,157	£104,476	£31,466	£32,306	£10,900	£10,139
Per cent. of expenditure ....	7.27	7.35	6.31	6.40	5.07	5.46	8.85	9.04
Per cent. on gross receipts ....	6.31	6.40	5.88	5.95	4.50	4.84	8.46	9.32
<i>Transfer to or from Suspense Account</i>	Cr. £29,130	Cr. £12,144	Cr. £27,995	Cr. £19,402	—	—	Cr. £686	Cr. £1,163
<b>TOTAL EXPENDITURE</b> ....	£2,482,242	£2,469,853	£1,714,727	£1,631,140	£620,871	£591,381	£123,188	£112,121
Per cent. of receipts ....	86.73	87.18	93.24	92.86	88.76	88.68	95.57	103.05
<b>Balance—</b>								
Profit ....	£379,617	£363,175	£124,291	£125,325	£78,586	£75,468	£5,735	loss £3,349
Percentage of profit to gross receipts	13.27	12.82	6.76	7.14	11.24	11.32	4.43	—

*(Continued from page 841)***Table XXI.—Receipts and Expenditure in Respect of Road Transport**

Receipts from passenger services have improved on both the L.M.S.R. and L.N.E.R., but the G.W.R. and Southern have discontinued passenger services altogether. There are all-round improved receipts from goods services. Expenses have also increased particularly under the head of Traffic in the case of the L.M.S.R., whilst the G.W.R. has spent more on maintenance of motors and hire of vehicles. That company's net receipts are less by nearly £5,000. The L.N.E.R. has a drop of nearly £17,000 in traffic expenses but has a greatly diminished credit in respect of road transport for other railway companies and undertakings.

**Table XXII.—Receipts and Expenditure in Respect of Docks, Harbours and Wharves**

All companies except the G.W.R. show increased receipts, the improvement on the L.M.S.R. being mainly in craneage and other services, whilst the L.N.E.R. shows better results in dock dues on ships. The Southern has good increases under both these heads, whilst the G.W.R. has decreases from these sources and also from dock dues on goods. The L.M.S.R. has spent £30,000 more on maintenance, £24,000 more on dredging, and £35,000 more in operating expenses. Its miscellaneous expenses are however nearly £35,000 less, and a special credit of £25,000 has been taken in respect of rates, and £31,000 withdrawn from reserve. By this means a loss of over £14,000 in 1934 has been transformed into a gain of nearly £15,000 in 1935. The L.N.E.R. has spent £65,000 more on maintenance, and there is an

*(Text continued on page 846)***Table 24—Mileage of Lines Open for Traffic and Receipts per Route Mile, Years 1934 and 1935**

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
<b>MILEAGE OF LINES OPEN FOR TRAFFIC (PER STATISTICAL RETURN 1A)—</b>								
<i>Lines owned by the Company, including Company's share of Lines Jointly Owned other than those included in Abstract "J"—</i>								
Length of road ....	6,930	6,937	6,364	6,369	3,783	3,785	2,138	2,156
Total miles reduced to single track	13,363	13,385	11,456	11,460	6,463	6,464	4,108	4,122
Sidings reduced to single track	6,015	6,017	5,361	5,338	2,611	2,600	1,253	1,256
Total of single track (including sidings)	19,378	19,402	16,817	16,798	9,081	9,064	5,361	5,378
<i>Lines leased or worked—</i>								
Length of road ....	3	3	12	12	8	8	30	30
Total miles reduced to single track	4	4	25	25	9	9	31	31
Sidings reduced to single track	1	1	1	1	4	4	6	6
Total of single track (including sidings)	5	5	26	26	13	13	37	37
<b>TOTAL—</b>								
Length of road ....	6,933	6,940	6,376	6,381	3,791	3,793	2,168	2,186
Total miles reduced to single track	13,367	13,388	11,481	11,485	6,472	6,473	4,139	4,153
Sidings reduced to single track	6,016	6,018	5,362	5,339	2,615	2,604	1,259	1,262
Total of single track (including sidings)	19,383	19,407	16,843	16,824	9,087	9,077	5,398	5,415
<b>PASSENGER TRAIN RECEIPTS. PER ACCOUNT No. 10</b>	£25,142,375	£24,739,965	£16,466,267	£16,161,235	£10,709,704	£10,569,140	£15,626,365	£15,164,250
Per route mile ....	£3,626	£3,565	£2,583	£2,533	£2,825	£2,786	£7,208	£6,937
<b>GOODS TRAIN RECEIPTS. PER ACCOUNT No. 10</b>	£35,917,652	£35,235,596	£28,318,302	£28,377,253	£14,794,162	£14,500,385	£4,782,762	£4,967,676
Per route mile ....	£5,181	£5,077	£4,441	£4,447	£3,902	£3,823	£2,206	£2,273
<b>TOTAL TRAFFIC RECEIPTS. PER ACCOUNT No. 10</b>	£61,060,027	£59,975,561	£44,784,569	£44,538,488	£25,503,866	£25,069,525	£20,409,127	£20,131,926
Per route mile ....	£8,807	£8,642	£7,024	£6,980	£6,727	£6,609	£9,414	£9,210
<b>TOTAL RAILWAY RECEIPTS. PER ACCOUNT No. 10</b>	£61,658,170	£60,571,587	£45,145,649	£44,913,975	£25,738,314	£25,289,629	£20,647,677	£20,368,894
Per route mile ....	£8,893	£8,728	£7,081	£7,039	£6,789	£6,667	£9,524	£9,318

Table 25—Stock of Coaching Vehicles, Number of Passengers Carried, and Number of Season Ticket Holders, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
NUMBER OF PASSENGER CARRIAGES (PER STATISTICAL RETURN II)—	1935	1934	1935	1934	1935	1934	1935	1934
Steam	16,909	17,261	12,386	12,383	6,076	6,086	4,400	4,702
Electric	625	625	137	137	60	60	2,294	2,054
Rail motor	12	25	94	95	7	21	1	1
Total	17,546	17,911	12,617	12,615	6,143	6,167	6,695	6,757
NUMBER OF SEATS OR BERTHS (PER STATISTICAL RETURN II)								
Steam—								
First	119,448	121,527	76,449	76,489	37,848	38,542	40,141	42,432
Second	1,788	1,644	46,570	46,068	—	—	264	387
Third	889,187	905,211	552,299	547,983	311,907	308,830	184,880	198,518
Electric	43,735	43,735	8,240	8,240	2,680	2,680	172,957	156,137
Rail motor	592	1,176	5,523	5,656	405	1,172	44	44
Total	1,054,750	1,073,293	689,081	684,436	352,840	351,224	308,286	397,518
NUMBER OF PASSENGERS CONVEYED (PER STATISTICAL RETURN XIII)—								
Excluding season ticket holders	314,206,470	302,310,693	201,005,653	193,035,874	113,202,623	110,813,041	228,019,661	222,064,472
Estimated number of journeys by season ticket holders	128,603,400	130,389,600	91,441,800	92,048,400	40,905,600	40,152,600	121,221,000	115,877,400
Total	442,809,870	432,700,293	292,447,453	285,084,274	154,108,223	150,965,641	349,240,661	337,941,872
Per carriage	25,237	24,158	23,179	22,599	25,087	24,480	52,164	50,014
Per seat	420	403	424	417	437	430	877	850
NUMBER OF OTHER COACHING VEHICLES—								
Post Office vans	81	80	27	27	33	34	22	22
Luggage, parcel, milk, fruit and brake vans	2,554	2,565	1,370	1,410	1,325	1,362	1,242	1,262
Fish vans and trucks	857	876	3,155	3,253	363	363	—	—
Carriage trucks	1,684	1,611	563	611	259	262	138	161
Horse boxes	1,000	1,042	1,195	1,267	714	729	415	426
Miscellaneous	235	213	60	50	100	72	72	74
Total	6,411	6,387	6,370	6,618	2,794	2,822	1,889	1,945
Total coaching vehicles, including electric stock and rail motor vehicles	23,957	24,298	18,987	19,233	8,937	8,989	8,584	8,702

Table 26—Stock of Goods Train Vehicles and the Tonnage of Merchandise and Mineral Traffic Conveyed, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
<b>NUMBER OF MERCHANDISE AND MINERAL WAGONS (PER STATISTICAL RETURN II)</b> —								
Open	139,473	142,545	101,886	105,628	45,948	46,724	23,156	23,693
Covered	50,327	46,154	36,663	32,825	23,712	22,972	5,472	5,130
Special	2,904	2,798	4,794	4,828	1,585	1,427	736	680
Rail and timber (including twin trucks)	6,296	6,493	12,165	12,364	2,444	2,448	708	794
Mineral	58,905	59,017	79,624	82,002	1,386	1,394	1,575	1,203
<b>Total</b>	<b>257,905</b>	<b>257,007</b>	<b>235,132</b>	<b>237,647</b>	<b>75,075</b>	<b>74,965</b>	<b>31,647</b>	<b>31,500</b>
<b>NUMBER OF ORIGINATING TONS CONVEYED (EXCLUDING COAL AND COKE). (PER STATISTICAL RETURN XIV.)</b>								
Tons	38,204,017	37,645,614	34,174,453	34,569,361	15,600,918	15,441,569	4,577,368	4,891,227
Per wagon (excluding mineral)	192	190	220	222	212	210	152	161
<b>NUMBER OF CATTLE TRUCKS (PER STATISTICAL RETURN II)</b>	<b>7,748</b>	<b>7,835</b>	<b>5,378</b>	<b>5,833</b>	<b>3,148</b>	<b>3,173</b>	<b>1,065</b>	<b>1,110</b>
<b>HEADS OF ORIGINATING LIVE STOCK. (PER STATISTICAL RETURN XIV.)</b> —								
Number	4,635,089	4,704,549	3,370,512	3,543,721	1,655,908	1,584,144	584,091	601,130
Per wagon	598	600	627	608	526	499	548	542
<b>NUMBER OF BRAKE VANS (PER STATISTICAL RETURN II)</b>	<b>5,593</b>	<b>5,599</b>	<b>4,471</b>	<b>4,439</b>	<b>2,198</b>	<b>2,212</b>	<b>957</b>	<b>974</b>
<b>NUMBER OF RAILWAY SERVICE VEHICLES AND HORSES FOR SHUNTING (PER STATISTICAL RETURN II)</b> —								
Coal, coke, ash and sand wagons	8,811	9,240	8,554	8,720	4,338	4,498	149	153
Ballast wagons	3,333	3,818	1,871	1,935	1,973	2,018	777	798
Other wagons, &c.	2,386	2,526	2,488	2,453	1,499	1,525	737	729
<b>Total</b>	<b>14,530</b>	<b>15,584</b>	<b>12,913</b>	<b>13,108</b>	<b>7,810</b>	<b>8,041</b>	<b>1,663</b>	<b>1,680</b>
Horses for shunting	139	149	227	237	27	28	30	34

*(Continued from page 844)*

increase of £23,000 in operating expenses. £43,000 less was carried to reserve than was the case a year ago, but notwithstanding this the total working expenses are up by £45,000 and net receipts are less by £36,500. The G.W.R. maintenance bill is £112,000 less, but £43,000 has been carried to reserve as compared with a withdrawal from reserve of £56,000 in 1934. Dredging, rates and miscellaneous expenses are all up, and net receipts are down by £42,000. On the Southern, dredging has cost £24,000 more, and operating expenses are up by £38,000. £32,000 less has however been carried to reserve, and net receipts have improved by £39,000.

#### Table XXIII.—Receipts and Expenditure in Respect of Hotels, Refreshment Rooms and Restaurant Cars

All companies have increased their takings under this abstract. The L.M.S.R. profits are £16,000 higher, this figure practically representing the additional amount taken from reserve. The L.N.E.R. expenses have increased to a slightly greater extent than the receipts, due chiefly to an increase of

£45,000 on provisions, wines and spirits, and of £31,000 on maintenance. £8,500 more has been taken from reserve, and net receipts remain almost the same as a year ago. G.W.R. working expenses are up by £29,000, and net receipts show a gain of only £3,000. The increase of £20,000 in receipts on the Southern has been obtained with a rise of only £11,000 in expenses, and this year the business shows a profit instead of a loss.

#### Table XXIV.—Mileage of Line and Receipts per Route-Mile

All companies show a slight reduction in route mileage, but the L.N.E.R. and G.W.R. have increases in track mileage (including sidings). The reduction in route-miles, together with the growth in railway receipts, has of course effected an all-round improvement in the earnings per route-mile, the Southern being still at the top with £9,524.

#### Table XXV.—Stock of Coaching Vehicles

Except for the L.N.E.R., all companies show a reduction in the number of passenger carriages, but only the L.M.S.R.

shows a reduction in the number of seats provided. The growth in traffic has brought about an all-round increase in the number of passengers carried per carriage and per seat, but the Southern has still by a long way the best figures. In non-passenger coaching stock, there is a reduction in horse boxes, luggage vans and fish vans, and, except on the L.M.S.R., a reduction in carriage trucks.

**Table XXVI.—Stock of Goods Train Vehicles**

The L.N.E.R. reports a reduction in its wagon stock; the other three companies have small increases. The average number of tons of traffic conveyed per wagon per annum remains about stationary, but all companies except the L.M.S.R. show an increase in the number of head of live stock conveyed per cattle truck. The improvement is

due more, however, to a diminution in the number of cattle trucks, and not to an increase in the number of originating live stock, except on the G.W.R. The number of locomotive coal wagons and of ballast wagons tends to diminish. There are fewer horses engaged in shunting.

**Table XXVII.—Train and Engine Mileage and Receipts per Train Mile**

All companies have increased their train mileage, but shunting, assisting and light mileage has not increased proportionately and the ratio of train-miles to engine-miles has improved. Earnings per train-mile have varied but slightly. The Southern has the best figure for passenger trains and the L.N.E.R. for goods trains and for passenger and goods combined.

Table 27—Train and Engine Mileage and Receipts per Train-Mile, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935	1934	1935	1934	1935	1934	1935	1934
<b>A. MILES RUN IN RELATION TO THE COMPANY'S TRAFFIC RECEIPTS. TOTAL TRAIN-MILES (PER STATISTICAL RETURN XII)</b>								
Coaching	99,448,808	96,945,858	67,137,529	65,721,681	42,086,286	40,685,597	59,473,957	58,209,553
Goods	53,767,546	53,366,424	42,197,749	42,093,990	23,097,322	22,707,235	7,375,138	7,453,129
<b>Total</b>	<b>153,216,354</b>	<b>150,312,282</b>	<b>109,335,278</b>	<b>107,815,671</b>	<b>65,183,608</b>	<b>63,392,832</b>	<b>66,849,095</b>	<b>65,662,682</b>
<b>B. MILES RUN IN RELATION TO THE COMPANY'S EXPENDITURE. TOTAL TRAIN-MILES (PER STATISTICAL RETURN XII)</b>								
Coaching	99,486,130	96,978,924	67,286,116	65,875,300	42,062,544	40,699,928	59,471,492	58,200,919
Goods	53,917,912	53,507,498	42,263,770	42,177,806	22,741,757	22,671,786	7,303,395	7,373,426
<b>Total</b>	<b>153,404,042</b>	<b>150,486,422</b>	<b>109,549,886</b>	<b>108,053,106</b>	<b>64,804,301</b>	<b>63,371,714</b>	<b>66,774,887</b>	<b>65,574,345</b>
<b>C. MILES RUN BY THE COMPANY'S ENGINES (PER STATISTICAL RETURN XII). TOTAL TRAIN-MILES</b>								
Coaching	98,952,746	96,487,132	69,977,988	68,579,273	42,009,605	40,694,624	58,572,428	57,335,992
Goods	54,711,608	54,294,803	44,397,143	44,295,143	23,340,160	22,958,726	7,068,257	7,134,315
<b>Total</b>	<b>153,664,354</b>	<b>150,781,935</b>	<b>114,375,131</b>	<b>112,874,416</b>	<b>65,349,765</b>	<b>63,653,350</b>	<b>65,640,685</b>	<b>64,470,307</b>
<i>Shunting Miles</i> —								
Coaching	7,538,478	7,517,185	4,294,494	4,202,573	2,838,480	2,763,288	2,504,966	2,560,987
Goods	37,537,025	37,399,775	30,693,617	30,859,773	19,676,827	19,417,918	6,818,340	6,937,838
Other Miles (Assisting Light, &c.)	23,087,130	23,292,889	15,284,038	15,093,856	6,956,143	6,810,891	4,723,270	4,788,844
<b>Total engine miles</b>	<b>221,826,987</b>	<b>218,991,784</b>	<b>164,647,280</b>	<b>163,030,618</b>	<b>94,821,215</b>	<b>92,645,447</b>	<b>79,687,261</b>	<b>78,757,976</b>
Percentage train-miles of total engine miles	69.27	68.85	69.47	69.24	68.92	68.81	82.37	81.86
PASSENGER TRAIN RECEIPTS. PER ACCOUNT NO. 10	£25,142,375	£24,739,965	£16,466,267	£16,161,235	£10,709,704	£10,569,140	£15,626,365	£15,164,250
Per train-mile	5s. 0·68d.	5s. 1·25d.	4s. 11·22d.	4s. 11·02d.	5s. 1·07d.	5s. 2·35d.	5s. 3·06d.	5s. 2·52d.
GOODS TRAIN RECEIPTS. PER ACCOUNT NO. 10	£35,917,652	£35,235,596	£28,318,302	£28,377,253	£14,794,162	£14,500,385	£4,782,762	£4,967,676
Per train-mile	13s. 4·32d.	13s. 2·46d.	13s. 5·06d.	13s. 5·79d.	12s. 9·72d.	12s. 9·26d.	12s. 11·64d.	13s. 3·96d.
TOTAL TRAFFIC RECEIPTS	£61,060,027	£59,975,561	£44,784,569	£44,538,488	£25,503,866	£25,069,525	£20,409,127	£20,131,926
Per train-mile	7s. 11·65d.	7s. 11·76d.	8s. 2·31d.	8s. 3·01d.	7s. 9·90d.	7s. 10·91d.	6s. 1·27d.	6s. 1·58d.

Table 28—Summary of Financial Results Secured, Years 1934 and 1935

	L.M.S.R.		L.N.E.R.		G.W.R.		Southern	
	1935 £	1934 £	1935 £	1934 £	1935 £	1934 £	1935 £	1934 £
Total expenditure on Capital Account (No. 4)	452,843,092	452,554,778	351,554,147	351,333,741	184,072,637	183,685,192	167,425,314	166,064,274
Gross receipts from business carried on by the Company (No. 8)	69,455,245	68,180,325	51,818,934	51,376,256	29,788,622	29,280,382	23,517,026	23,152,749
Revenue expenditure on businesses carried on by the Company (No. 8)	57,043,635	56,924,562	43,945,267	43,521,169	24,817,604	24,311,381	18,476,400	18,399,375
Net receipts of businesses carried on by the Company (No. 8)	12,411,610	11,255,763	7,873,667	7,855,087	4,971,018	4,969,001	5,040,626	4,753,374
"J" Joint Lines—Company's proportion of Net revenue (No. 8)	68,314	57,306	284,101	258,199	141,107	130,638	Dr. 41,383	Dr. 49,432
Miscellaneous receipts net (No. 8)	2,291,005	2,331,358	1,162,408	1,177,889	1,114,271	1,069,264	1,310,909	1,326,479
Miscellaneous charges	1,743,404	1,723,191	948,803	943,029	775,837	757,904	237,855	230,086
Total net income (No. 8)	13,027,525	11,921,236	8,371,373	8,348,146	5,450,559	5,410,999	6,072,297	5,800,335
Appropriation from reserve or contingency fund	—	—	50,000	50,000	710,000	550,000	—	—
Profit on realisation of investments	—	—	—	—	122,990	323,948	—	—
Interest on loans and debenture stocks (No. 9)	4,439,170	4,439,171	4,263,349	4,253,298	1,649,811	1,649,809	1,943,167	1,943,167
Dividends on guaranteed and preference stocks (No. 9)	8,474,383	7,521,200	4,160,874	4,158,458	3,344,699	3,344,699	2,751,278	2,751,278
Balance after payments of preference dividends (No. 9)	113,972	—	Dr. 2,850	—	1,289,039	1,290,439	1,377,852	1,105,890
DIVIDENDS ON ORDINARY STOCK (No. 9)—								
Interim	—	Nil	Nil	Nil	Nil	107,324	107,324	275,866
Rate per cent.	—	Nil	Nil	Nil	Nil	‡	‡	Preferred Nil
Final	—	Nil	Nil	Nil	Nil	1,180,568	1,180,568	1,103,464
Rate per cent.	—	Nil	Nil	Preferred Nil	Preferred Nil	2½	2½	Preferred 4
—	—	—	Deferred Nil	Deferred Nil	Deferred Nil	—	Deferred Nil	Deferred Nil
Total	—	Nil	Nil	Nil	Nil	1,287,892	1,287,892	1,379,330
Rate per cent.	—	Nil	Nil	Preferred Nil	Preferred Nil	3	3	Preferred 5
—	—	—	Deferred Nil	Deferred Nil	Deferred Nil	—	Deferred Nil	Deferred Nil
Surplus	—	113,972	—	—	—	1,147	2,547	—
Deficit	—	—	39,135	2,850	13,610	—	—	1,478
Brought forward from previous year	20,519	59,654	43,033	56,643	43,226	40,679	227,353	224,927
Carried forward to subsequent year	134,491	20,519	40,183	43,033	44,373	43,226	225,875	227,353

Table XXVIII.—Summary of Financial Results Secured

This table shows the following improvement in net income of the four companies:—

	1935 £	1934 £	Increase £	Increase per cent.
L.M.S.R.	13,027,525	11,921,236	1,106,289	9.28
L.N.E.R.	8,371,373	8,348,146	23,227	0.28
G.W.R.	5,450,559	5,410,999	39,560	0.73
S.R.	6,072,297	5,800,335	271,962	4.69
Total	32,921,754	31,480,716	1,441,038	4.58

The difference between the L.M.S.R. and Southern results and the figures of the L.N.E.R. and G.W.R. has already been explained, and if the rates credit of £1,135,000 brought into account by the two former companies were eliminated, there would remain an increase in net income of only £306,038; an improvement of rather less than 1 per cent.

upon 1934, which does not compare favourably with the improvements effected in the two preceding years.

The L.M.S.R. has this time paid full dividends on all its preference stocks and has increased its carry forward by £114,000. The dividend position of the L.N.E.R. is exactly the same as it was a year ago, and again £50,000 has been withdrawn from reserve. The G.W.R. has £200,000 less in profits on realisation of investments, and has increased its appropriation from reserve from £550,000 to £710,000 to maintain the dividend of 3 per cent. on its ordinary stock. The Southern has paid the full dividend on its 5 per cent. preferred ordinary stock, as compared with 4 per cent. a year ago. Given a continuation of the improvement in trade which has marked the opening weeks of 1936, freedom from labour troubles and international complications, the companies, with the benefit of the House of Lords decision on the question of rating, should be in a position to show still better results twelve months hence.